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Southwestern MEDICINE

fficial Journal of The Southwestern Medical Association, The Western Association of Railway Surgeons, The Texas Orthopaedic Association, The Southwest Obstetrical and Gynecological Society, The Southwestern Dermatalogical Society, Texas District One Medical Association, The Southwestern New Mexica Medical Society, and El Paso County Medical Society

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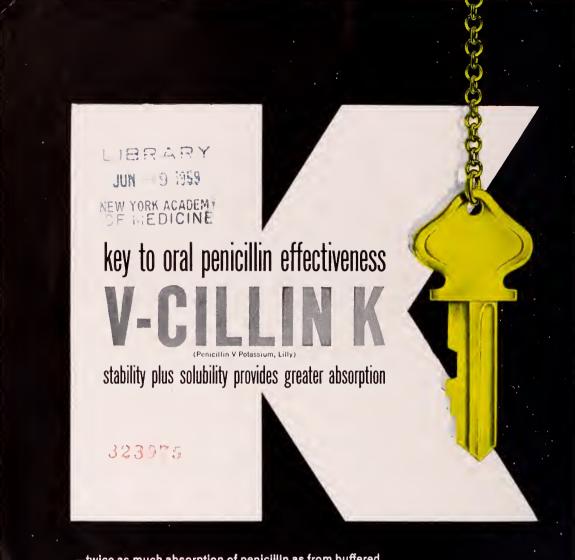
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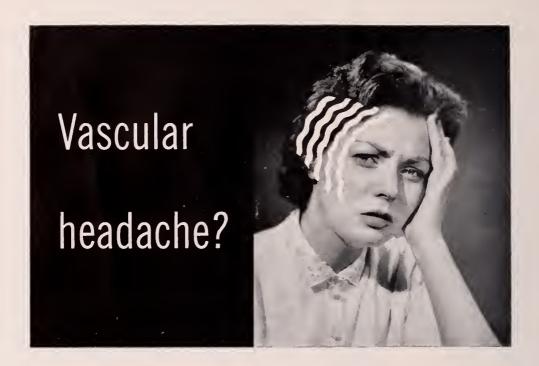
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JANUARY, 1958



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the aching muscles

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antacid,

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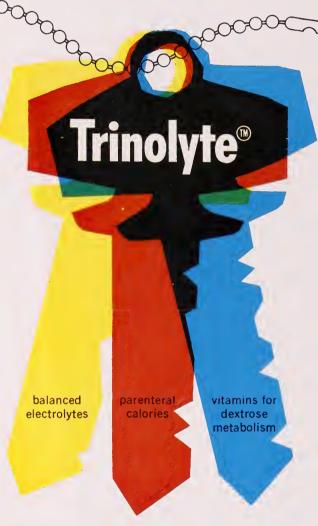
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Moreover, aside from the purely hypotensive actions of wine, its unquestionable euphoric effects help counter the depression, apprehension and anxiety so frequently present in sufferers from heart and coronary disorders.

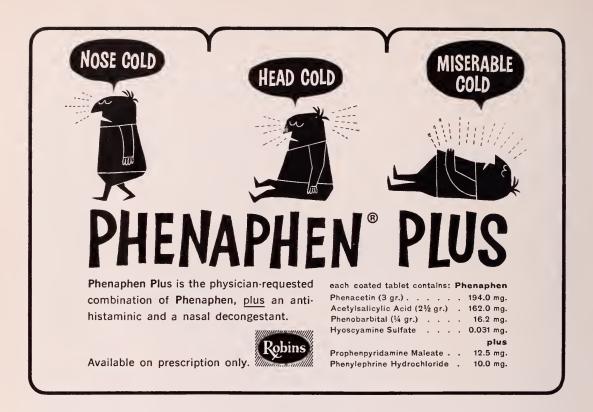
The beneficial actions of wine appear to transcend those of more concentrated alcoholic beverages—valuable cardiotonic properties having been attributed to the aliphatic aldehydes and other nonalcoholic compounds recently isolated from certain wines and grape varieties.

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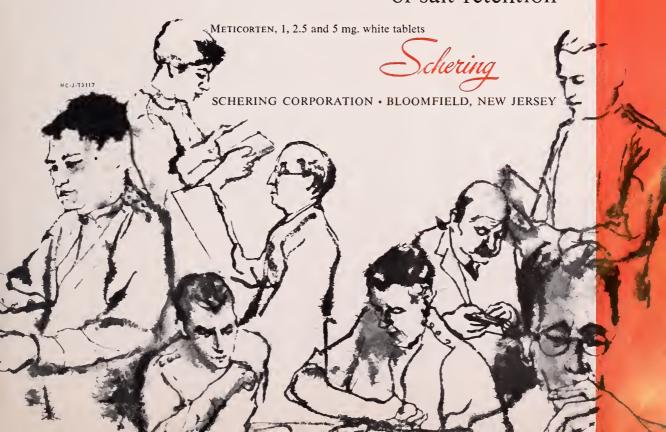
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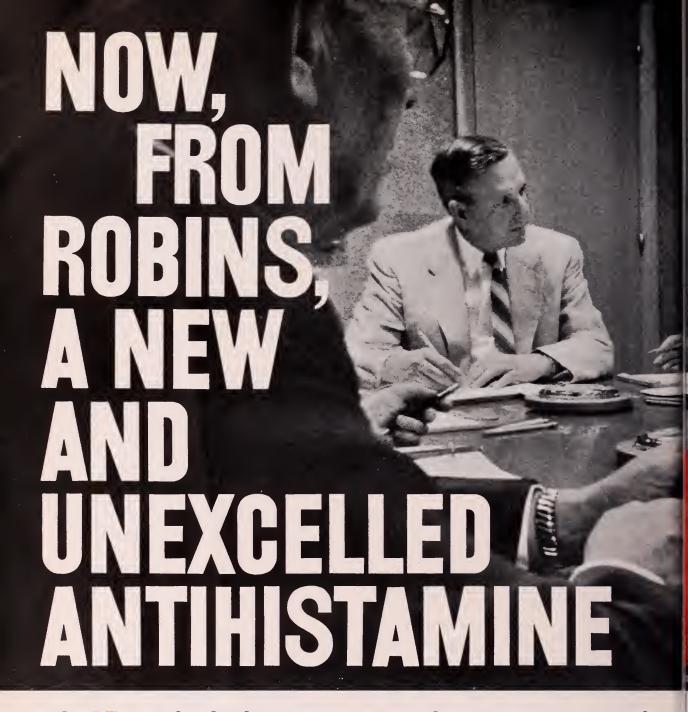
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DIMETANE potency is unexcelled. DIMETANE has a therapeutic index unrivaled by any

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Diagnosis	No. of Patients	Response			Side Effects	
		Excellent	Good	Fair	Negative	
Allergic rhinitis and vaso- motor rhinitis	30	14	9	5	2	Slight Drowsiness (3)
Urticaria and angioneurotic edema	3	1	1	1		Dizzy (1)
Allergic dermatitis	2		1	1		Slight Drowsiness (2)
Bronchial asthma	1		1			
Pruritus	1		1			
Total	37	15	13	7	2	Drowsiness (5) 16.29 Dizzy (1)

» unexcelled antihistaminic action

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decongestant:
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Phenylephrine Hydrochloride 5 mg
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JANUARY, 1958



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Southwestern MEDICINE

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No. I



Dr. Melick of Phoenix Rebuts Editorial "Ligation of Internal Mammary Arteries"

The following letter written by Dermont W. Melick, M.D. of Phoenix to the Editor of Southwestern Medicine in rebuttal to the editorial "Ligation of The Internal Mammary Arteries"* is being published here at the author's request. Medicine is a far from exact science and many, strong and diverse opinions exist in numerous areas. Open and vigorous discussion is always rewarding.—THE EDITOR.

I recently attended a meeting at one of our local hospitals and, at that time, the editorial that you so obligingly reprinted, taken from the New England Journal of Medicine, was read and the following comment was made: "This rather caustic editorial would lead one to believe the operation is simple (probably no more than an office procedure) and such simplification would make one conclude that the editorial must have been written by one of our beknighted saints in the field of internal medicine who has retired into his ivory tower and long since removed himself from the gory and degrading atmosphere of the surgical abattoir. The tone of this editorial points up again quite sharply that in medicine we still have our skeptics and possibly it is to them that we owe our big advances in medicine based on the fact that we work hard to overcome their cynical and disparing attitude."

I think it should be pointed up that the ligation of the internal mammary arteries is still very much in the developmental stage and, instead of accepting and reprinting an editorial as obviously biased and berating an operation that is "in the fashion", we should try to discover the truth as to whether the operation does or does not relieve angina. Dr. Robert Glover, in a personal communication to me recently, stated the following:

"Anatomically there is a communication between the pericardio-phrenic arterial system and the peripheral radicals of the coronary arterial system. This has been established again in our Laboratory and, from a historical standpoint, it has been shown on numerous previous occasions since 1880." The defect in all Laboratory experiments to the present date has to do with inability to prove that the procedure actually increases cardiac flow measurably. It is not improbable, however, that this inability to prove change in cardiac flow is due to lack of a good method for measurement. Dr. Glover reports that 68% of his patients have shown clinical improvement.

Further, in the recent weekly issue of SCOPE, the following is taken: "Drs. C. R. Blair, R. F. Roth and Harold A. Zintel of St. Luke's Hospital, New York, state: 'It is suggestive that bilateral internal mammary artery ligation in dogs does lead to a significant contribution of arterial blood from the extra cardiac mammary circulation to the coronary circulation.'"

It seems to me that it would be well for you and other individuals who are writing editorials for a fairly wide medical audience to keep in mind "be not the first to condemn, nor the first to accept".

Very truly yours,

D. W. MELICK, M.D.

^{*}This editorial was first published in The New England Journal of Medicine and republished with editorial comment in Southwestern Medicine of November 1957.

ORTHOPAEDIC SURGERY NOTES

Southwestern Medicine To Have Orthopaedic Feature

Plans are now being formulated to create an Orthopaedic column for South-western Medicine. Dr. W. Compere Basom has been recently appointed the orthopaedic representative for the Texas Orthopaedic Association to Southwestern Medicine. The appointment was made by the president of the Association, Dr. Margaret Watkins.

The orthopaedic column will be called "Orthopaedic Surgery Notes" and will consist of book reviews, news items, editorial comments and scientific papers which may be of interest to the readers of SOUTHWESTERN MEDICINE. It is hoped that in doing this the large volume of new books and periodicals can be summarized and the advances can be listed for quick reading.

Dr. Basom took bis training in orthopaedic surgery at the Mayo Foundation. Rochester, Minnesota and obtained a Master of Science Degree in orthopaedic surgery from the University of Minnesota in June 1941.

Since July 1941 he has practiced orthopaedic surgery in El Paso and has been a partner with Dr. Louis W. Breck.

During World War II Dr. Basom was stationed at William Beaumont Army Hospital and has been a Civilian Consultant to that hospital since 1946.

Dr. Basom is a Diplomate of the American Board of Orthopaedic Surgery and a Fellow in the American Academy of Orthopaedic Surgeons. He is a member of the Sonthern Medical Association, Western Orthopaedic Association, Texas Orthopaedic Association, International College of Surgeons, past Chief of Staff Hotel Dien Sisters' Hospital and Providence Memorial Hospital in the Orthopaedic Section, Texas Railway and Tranmatic Surgical Association, American Medical Writers' Association, Texas Rebabilitation Association, Association of American Physicians and Surgeons, American Medical Education Foundation, American Fracture Association, Association of Military Surgeons of the United States, National Rebabilitation Association, and a Fellow in the Southwestern Surgical Congress.

A reporter visiting a certain foreign country reported on his return that there was a doctor for almost every part of the body. There were doctors who treated only the eye; others who treated only the intestinal tract; others who did only head surgery and so forth. The only thing unique about this report was that the reporter was Herodotus and his report concerned ancient Egypt.

It is therefore to be hoped that the reader will pardon SOUTHWESTERN MEDICINE for its slight departure into the field of orthopaedic surgery. It is hoped that the reader is interested in this field. This section will deal with orthopaedic news items, book reviews and comments on advances in the field. The Orthopaedic Editor will attempt to present interesting scientific papers about this subject also.

News Item: The recent annual meeting of the

American Fracture Association in El Paso was a huge success according to Dr. H. W. Wellmerling, the Secretary General. In a recent letter he stated that it was one of the best. He enjoyed all of the social activities very much and also stated that there were more papers and better ones than in any of the previous meetings. In fact, he stated that it was better than the Chicago meeting and he particularly enjoyed the friendliness of all the people in this area.

It is interesting to note that the American Fracture Association's primary aim is the elevation of fracture treatment standards. It is a friendly organization composed of doctors who like to treat fractures and who like to get together and discuss their problems. It was voted at the last meeting that a new publication of the topography of pinning of fractures would be introduced and brought up to date and that surplus funds would be used for teaching purposes.

The next meeting will be in Oklahoma City in 1958. In 1959 the meeting will be in New Orleans and in 1960 the meeting will be held in Mexico City. The fracture association has quite a few members in Mexico City and it is anticipated that this will be an extremely pleasant and instructive meeting.

It is very commendable that the journal "Lancet" has requested the papers of Dr. George W. Horton and Dr. William C. Westen for possible publication.

It is notable that speakers and members came from coast to coast; from Minnesota to Mexico and Cuba, and that the meeting was intense and yet extremely enjoyable.

The round table luncheons were so arranged that each doctor could attend the table containing the speaker of his choice. We enjoyed having Dr. Franklin Lowe from San Francisco who unofficially showed movies of long term follow up over a period of many years of Albee reconstruction operation of the hip and of a conservative nonsurgery method of correcting genu varus and valgus. These extreme long term follow-ups were very interesting and instructive. Dr. Lowe stayed Monday afternoon after the meeting closed at 5 P.M. and very kindly presented these films.

The excellent response of the orthopaedic surgeons in this area was very pleasing and it is hoped that in the future summaries of the 26

papers presented at the main meeting can be printed in this journal.

These orthopaedists were Dr. Charles B. Sadler, Dr. Morton H, Leonard, Dr. S. Perry Rogers, Dr. William C. Westen, Dr. R. W. McIntire, Dr. George L. Dixon, Dr. Mario Palafox, Dr. Perry J. C. Byars, Dr. David M. Cameron, Dr. George W. Horton, Dr. John S. Moore, Dr. A. E. Luckett and Dr. Zigmund W. Kosicki.

One of the new points brought out at the meeting was the use of the Hansen-Street intramedullary femoral nail for supracondylar and "T" fractures of the lower end of the femur. By the use of threaded holes at the lower end of the nail the fragments can be approximated on the nail and then with a threaded pin can be fixed to the rod.

Book Review: Campbell's Operative Orthopaedic Surgery, Shands and Raney. Handbook of Orthopaedic Surgery, Key and Conwell Fracture, Dislocation and Sprain, The Yearbook of Orthopaedic and Traumatic Surgery, Clinical Orthopaedics and The Journal of Bone and Joint Surgery will be summarized in the near future.

The Quarterly Cumulative Index Medicus and The Excepta Medica of Orthopaedics and Traumatology are useful items in helping the orthopaedist keep up to date. From time to time reviews of these and other interesting items will be carried.

Texas District One to meet in Pecos

Texas District One Medical Association will hold its 1958 annual meeting Feb. 11 in Pecos.

The program will be presented by El Paso Chapter of the American College of Surgeons,

Officers of the Association are W. A. Jones, M.D., El Paso, president; William E. Lockhart, M.D., Alpine, vice-president; and E. S. Crossett, M.D., El Paso, secretary-treasurer.

The Program

9:00 A.M. Panel Discussion: Intestinal Obstruc-

Moderator—J. Leighton Green, M.D.

- 1. Diagnosis—Ward Evans, M.D.—
 10 min.
- 2. X-ray—Gordon Black, M.D.— 10 min.
- 3. Electrolytes and Intubation—Chas. E. Webb, M.D.—10 min.
- 4. Treatment—W. W. Wollmann, M.D. —10 min.
- 5. Question and answer period—30 min.

10:10-10:20—Intermission.

10:20- Indications for Hysterectomy—Gerald H. Jordan M.D.—20 min.

10:40 Peripheral Vascular Surgery—Leo Villareal, M.D.—20 min.

12:00-Lunch

1:30 Panel Discussion: Antibiotic Therapy, Current Status.

Moderator—H. D. Garrett, M.D.

- 1. In General Surgery—Leigh L. Wilcox, M.D.—10 min.
- In Medicine—Frank C. Golding, M.D.—10 min.
- 3. In Urinary Infections—A. W. Multhauf, M.D.—10 min.
- 4. In E.E.N.T.—Maurice P. Spearman, M.D.—10 min.
- 5. Question and answer period—30 min. 2:40-2:50—Intermission.
- 2:50- Lesions of the Cervix—C. C. Boehler, M.D.—20 min.
- 3:15- Business Meeting.

THE PRESIDENT'S COLUMN

The Southwestern Medical Association

By Louis G. Jekel, M.D., Phoenix

Various medical organizations exist for different reasons, and have different purposes, functions, or goals. Roughly, these functions may be divided into the following catgories: scientific, political (general or specific), economic, cultural, and social. Some organizations may be concerned with only one of these phases, as, for example, a Doctor's Symphony Orchestra. Others may have a variety of interests; such as the American Medical Association.

Scientific Organization

The Southwestern Medical Association traditionally is a scientific organization. Its membership is composed of physicians and surgeons living in Arizona, New Mexico, West Texas, and Northern Mexico. Each year a convention is held in one of the larger cities of the region. The program of this convention is usually almost entirely scientific in nature, It is broad in concept, and includes many fields of medicine. Each speaker is an expert in his field. The listener, whether he be generalist or specialist, can enjoy and profit from these meetings. Furthermore, members of the American Academy of General Practice can receive about 15 hours post-graduate credit for attending the meeting.

Social functions make up a secondary but nevertheless important part of these annual meetings. The participation of the wives in these functions, and the opportunities for good fellowship with old friends make the affairs full and complete and most enjoyable.

In addition to the annual conclave the Southwestern Medical Association is responsible for the publishing of SOUTHWESTERN MEDICINE, a regional journal of wide distribution. This journal serves as the official organ for the Southwestern Medical Association, the Texas Orthopaedic Association. The Western Association of Railway Surgeons. The Southwest Obstetrical and Gynecological Society, The Southwestern Dermatological Society, Texas District One Medical Association, The Southwestern New Mexico Medical Society, and the El Paso County Medical Society. It carries news of special interest to the members of these organizations, and it carries the scientific articles presented at the annual sessions of these various organizations.

Important Function

One of the most important functions of SOUTHWESTERN MEDICINE as a journal, and of course, the Southwestern Medical Association as its sponsor, is the serve as an outlet in which the physicians of the region may express themselves, Doctors in this area as well as elsewhere are interested in medical investigation. Our members often make observations which are worth reporting, and they frequently have interesting and instructive clinical cases to record. They may have opinions about medical or related topics which they wish to express, SOUTHWESTERN MEDICINE is the place for such material, and the editors are pleased to receive it for publication.

Although it is not an inflexible rule, the annual meetings have in the past been rotated between Albuquerque, El Paso, Phoenix, and Tucson. The next meeting will be held in Tucson in October of 1958. The Tucson members are developing a very excellent program. We always enjoy our visits to The Old Pueblo. Plan now to attend, won't you?

MEETINGS

Dr. Gerald H. Jordan Elected President

Of El Paso County Medical Society



Dr. Gerald H. Jordan was elected president of the El Paso County Medical Society at its annual meeting on December 10.

He succeeds Dr. Robert F. Thompson as president. Other new officers elected are Dr. Branch Craige, president-elect; Dr. Delphin Von Briesen, vice-president; Dr. D. H. Ewalt, secretary; Dr. Ward Evans, secretary-elect, and Dr. Bradford Hardie, treasurer.

Born in London, Ontario, Canada, Dr. Jordan attended the Appleby School for Boys in Oakville, Ontario, and received his M.D. from the University of Western Ontario Medical School in 1929.

Following graduation, Dr. Jordan spent a year as assistant and demonstrator in the pathology department at the University of Western Ontario Medical School. He interned and remained four years to complete his surgical residency at the Church Home and Infirmary, now known as the Church Home and Hospital, in Baltimore, Maryland.

He came to El Paso in 1934 and became associated with the late Dr. Branch Craige Sr., Dr. Travis Bennett and the late Dr. John Hardy, specializing in general surgery and gynecology. He is presently associated with Dr. C. E. Webb, in the Medical Center at 1501 Arizona St.

Dr. Jordan is president of the Board of the El Paso Medical Corp., is a diplomate of the American Board of Surgery and a Fellow of the American College of Surgeons, having served as a Governor for Texas for the college from 1953 to 1956.

At present, Dr. Jordan is chairman of the local committee on applicants of the American College of Surgeons. He is a charter member of the Southwestern Surgical Congress and a Fellow of the Texas Surgical Society. He is a member of the active staff of El Paso General Hospital and of the courtesy staff of Providence Memorial Hospital, Hotel Dieu, and Southwestern General Hospital.

Dr. Jordan was chairman of the Board of El Paso County Hospital from 1937 to 1941.

During World War Two, he served as medical officer and adjutant for the El Paso Battalion of the Texas Defense Guard and in February 1943 he entered the U. S. Army Medical Corps with the rank of Major. He served in the U. S. and Mediterranean Theater of Operations and the South Pacific, returning from Japan, in January 1946. He returned to civilian life with a rank of lieutenant colonel.

He is a charter member of the Sheriff's Posse; past president of the Riding and Driving Club: councilman of troop 187 of the Boy Scouts of America. He and his family are members of St. Clement's Episcopal Church.

Dr. Jordan was naturalized as an American citizen in 1937.

He and Mrs. Jordan reside at 4517 Cumberland Circle. They have a daughter, Florence May who attends the University of Arizona and who is a Duchess in the Southwestern Sun Carnival this year; and a son, Gerald Henry, who is in the eighth grade at Austin High School.

JANUARY, 1958 29



Dr. Van Epps of Phoenix Elected President of Southwest Obstetrical and Gynecological Society

Dr. Charles E. Van Epps of Phoenix, Arizona was elected president of the Southwest Obstetrical and Gynecological Society, at its annual meeting in Las Vegas, Nevada, November 4 and 5, 1957. He succeeds Dr. Jesse M. Rust of San Diego.

Other new officers are Dr. Donovan Johnson, Santa Ana, president-elect; Dr. Paul O. Wiig, Reno, Nevada, vice-president; Dr. Zeph B. Campbell, Phoenix, Arizona, re-elected secretary, and Dr. Raymond Jennett, Phoenix, Arizona, re-elected treasurer.

Elected to Council Group B for 1957-58 were: Dr. R. P. O'Donnell of Las Vegas, Nevada; Dr. Edward Sattenspiel of Phoenix, Arizona; Dr. Charles Galt, Carlsbad; Dr. Dalton Deeds, San Diego; Dr. John Wanless, San Diego, and Dr. Rudolf Hack, San Bernardino.

The meeting, a highly successful event, featured the following as guest speakers: Dr. Edward C. Hughes, Professor of Obstetrics, State University of New York Medical Center at Syracuse; Dr. Milton L. McCall, Professor and Head of the Department of Obstetrics and Gynecology, Louisiana State University School of Medicine, New Orleans, Louisiana; Dr. Ralph A. Reis, Professor Obstetrics and Gynecology, Northwestern University, Chicago; Dr. Edward G. Waters, Division Chief of Obstetrics, Margaret Hague Maternity Hospital, Jersey City, New Jersey, and Assistant

Clinical Professor Obstetrics and Gynecology, Columbia Medical School; Dr. Lawrence R. Wharton, Assistant Professor Gynecology, Johns Hopkins University, Baltimore, Maryland.

Born in Iowa City, Iowa, Dr. Van Epps received his B.S. and M.D. from the University of Iowa. He interned in St. Joseph's Hospital in Phoenix and took his residency in the University of Iowa Hospital.

He began the private practice of medicine in Phoenix in 1938. He is Chief of the Obstetrical and Gynecological Service at the Good Samaritan Hospital in Phoenix, is a member of the Professional Ethics Committee of the Maricopa County Medical Society, and a member of the Blue Shield Adjudication Committee.

He is presently associated in Phoenix with Dr. Preston Brown, Dr. Robert Jones and Dr. Rulen Lawrence.

During World War II, he served for three and one-half years with the Eleventh Airborne Division and was overseas 18 months with the paratrooper unit. He holds the rank of Captain. He has been awarded the Silver and Bronze Stars and the Purple Heart.

He is a member of the Rotary Club of Phoenix. He and Mrs. Van Epps have two sons and a daughter.



The Southwest Obstetrical and Gynecological Society held its annual meeting in Las Vegas, Nevada, November 4 and 5. The lavish Hotel Tropicana (above and below) was headquarters for the meeting, which drew physicians from five states.





At the speaker's table during a luncheon and round table were, left to right, Dr. Edward G. Waters, guest speaker, Dr. Thomas O. Rowley, Mesa, Ariz., luncheon chairman, Dr. Ralph A. Reis, guest speaker, Dr. Edward L. Hughes, guest speaker, Dr. Milton McCall, guest speaker, and Dr. Jesse A. Rust, Jr., San Diego, retiring president.



Assisting Dr. Charles E. Van Epps, new president, duiring the coming year will be the above officers, left to right: Dr. Donovan Johnson, Santa Ana, Calif., president-elect; Dr. Zeph B. Campbell, Phoenix, reelected secretary; Dr. Paul O. Wiig, Reno, Nev., vice-president; and Dr. Raymond Jennett, Phoenix, reelected treasurer. Below is Dr. E. H. Weigle of La Jolla, Calif.





Above are Dr. Jean Hess Lash, Albuquerque, and Dr. Jesson L. Stowe, El Paso. Below are Dr. J. H. Wallace, San Bernardino, who is a resident in the San Bernardino County Hospital, and Capt. R. L. Tucker, Nellis Air Force Base at Las Vegas, Nev.



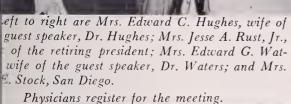


r. Clement C. Boehler of El Paso exhibits a sen hand to Dr. W. V. Treadwell of Santa Ana, f.



Left to right are Dr. A. G. Reynolds, Redlands, Calif., Dr. Frank Turnbull, Redlands, and Dr. I. A. Kotner, San Bernardino.







Dr. Hugh LaMaster, Clifton, Ariz. (left) and Dr. R. J. Fahrner, Santa Barbara, Calif.



One of the luncheon round tables.





Above, a typical Las Vegas scene, with which physicians could rest their eyes. Below, Society members' wives are entertained by the Las Vegas High School Choralettes under the direction of Mrs. James R. Dickinson, wife of the former director of the Las Vegas Branch of the University of Nevada.



CURRENT THERAPY

Acute Coronary Occlusion

By JACK A. BERNARD, M.D., El Paso

With a Discussion by Dr. Ralph H. Homan, El Paso

It is said that half of the deaths due to coronary occlusion are perhaps due to mismanagement; that is, half of the deaths of patients under medical management who die within the first few weeks. Fifty per cent of these are said to be due to mismanagement! At first thought, the treatment of a coronary occlusion would seem simple: Morphine, oxygen, and bed rest. However, in view of the above introductory statement and, moreover, since 25 per cent of physicians suffer coronary occlusions, a pertinent review of present day methods of treatment with a careful, minute analysis and critical appraisal, with thought provoking questions and perhaps even some surmises is indicated.

Four Phases

The treatment of an acute coronary occlusion with myocardial infarction might be divided into four phases or periods.

- 1. The acute phase or episode: That is, the first 24 to 72 hours with its problems of pain, shock, arrythmias and sometimes congestive failure.
- 2. The period of "bed rest"; that is, the period of rest, not necessarily bed rest, and this is emphasized, and will be discussed. During this period there arise the problems of anticoagulants, vasodilators and diet.
- **3.** The period of convalescence, gradual ambulation, and finally
- **4.** The return to a modified or adjusted daily living.

Throughout all these phases there is another aspect which is often neglected; at least, rarely discussed in the general literature, that is, the psychosomatic aspect of this illness which is truly uppermost and of prime importance to the patient, perhaps more so than any other illness. For here is an illness where the patient is going to live for an indefinite period of time . . . disabled . . . appearing well and hearty, realizing his time is limited . . . yet, he has all sorts of economic and other problems. These and the other thoughts which confront the patient are rarely brought to the attention of the treating physician, and if so, are

generally shrugged off by him as he hurries about his busy practice.

Acute Episode

First, as regards the acute episode: The first 24 to 72 hours. The diagnosis is usually not a problem. To repeat, treatment would seem simple: Morphine or demerol, oxygen and rest.

First and foremost is the problem of pain and its control. It should be emphasized that in some instances, and this seems more common in the younger patient, the pain is terrible, seemingly unbearable. Thus in the literature there are such statements which seem trite to those who have experienced such pain: "Give one-fourth gr. of morphine or give one-eighth or one-fourth gr. of morphine subcutaneously or 75 to 100 mg. of demerol and if the pain is severe give intravenously."

Avoid Intravenous Medication

Cardiologists and other experienced clinicians recommend *not* to give cardiac patients intravenous medication if it can be given otherwise. Thus it is the tendency to avoid intravenous morphine or demerol in acute coronary occlusion and this is a strong tendency. However, it is felt that many physicians are prone to give insufficient morphine or demerol in patients with severe pain: I refer to those patients in very severe distress, in whom the pain is apparently terrible and unbearable.

Such patients should be given at least one-fourth gr. of morphine intravenously or 100 mg. of demerol intravenously. Often patients have had morphine or demorol previously and they know that they can tolerate one drug better than the other. If such history is obtainable the appropriate drug is then chosen.

Morphine Preferred

It is a feeling of many clinicians that demerol is more likely to cause vasomotor collapse than morphine. Also many clinicians feel that it is not as effective as morphine. Still, for some reason demerol is more often tried first in such cases. Morphine would seem preferable therefore unless there is a history of untoward reaction. To repeat, morphine is preferable.

Oxygen treatment is standard procedure and it is used for several days or longer, particularly depending on the patient's condition and the physician's judgement. It is often effective in relieving the pain and many patients feel more comfortable with oxygen. Actually, there is some times some difficulty in weaning patients from its use.

Many Instances

Again, it should be emphasized that in many instances the patients may not get enough morphine initially and are probably not getting it intravenously. This is understandable, as it is realized that the possibility of sudden death at the time of the intravenous medication certainly exists. It should be given slowly and cautiously, perhaps with fear and trepidation, but who is to say that morphine causes such deaths in such patients who are prone to sudden death?

As many coronary patients are often brought to the hospital, the possibility of getting an anesthetist's help in these initial episodes might seem plausible. I refer to those patients in whom the pain is severe, unbearable. An available anesthetist would be invaluable with his experience in controlling pain and sedation during the first hour or two.

Morphine Given

If no anesthetist is available and usually one is not, morphine — one-fourth grain — should be given intravenously and repeated in 20 minutes if needed; or after the patient is more comfortable, it can be given intramuscularly. Nalline, of course, should be used if too much morphine is given and positive pressure oxygen if the patient is depressed more than desired. Oxygen by mask or by tent is then continued.

If cardiogenic shock is present, the vasopressure drugs are indicated. For use in the home, Neosynephrine (or one of the other drugs listed below) should be carried in the physician's bag and 5 to 10 mg. intramuscularly should be given as soon as possible. The sooner the vasopressure drugs are employed, the better the outlook. In the hospital Levarterenol (Levophed) four to eight mg. in a liter of five per cent glucose is administered intravenously to maintain the blood pressure at about 100 mg. systolic pressure.

More May Be Added

More may be used if necessary to maintain this pressure, that is eight, 16, or even 32 mg. may be added to the glucose. Other drugs include Wyamine 15 to 30 mg. intravenously or intramuscularly or Vasoxyl 20 mg. intravenously or intramuscularly.

One of these drugs should be carried in the bag with the dosage well fixed in the physician's mind, or it would be better to have the dosage clearly labeled on the container for the physician who rarely encounters such patients with an acute coronary occlusion in severe shock. Finally, Hydrocortisone and Desoxycortisone may later be used, in such case, when the shock does not respond to the vasopressor drugs.

The complications of arrhythmias and heart failure are treated in the usual manner with quinidine and digitalis and the other conventional measures.

Little Things

There should be mentioned little but important things like inserting a catheter and allowing sips of water only. Urinary retention is common, and in the severely ill patient, it is advisable to go ahead and put in the catheter in such semiconscious patients. Sips of water — not too much — at room temperature are allowed: no ice, no ice cold drinks, carbonated drinks or fruit juices, as these are not well tolerated, causing gaseous distress.

Special Nurses

A word about special nurses: The family is quite pleased to have someone looking after such semi-conscious patients, and of course, the patient should be turned periodically to avoid statis pneumonia and venous stasis in the legs. As the patient improves and becomes more conscious, the benefit of special nurses, although well meaning, may be questioned as they most likely tend to bother the patient in many instances, to "fix him up," bathe him and do the other little things to make him comfortable, when actually the patient should be left alone. (He wants to be left alone!) Moreover another person in the room tends to promote conversation and thus will also interfere with the patient's rest.

After the acute episode in which the pain, shock and other complications are under control, the question of anticoagulant therapy should then be considered. However, it is emphasized that the immediate problem is to control the pain and the complications and then consider anticoagulant therapy.

Summary

In summary, in the treatment of the acute phase of a coronary occlusion give enough morphine and give it by the most direct route to control pain. Rapid treatment of shock is indicated, and such drugs should be carried in the physician's bag. Except for turning, the patient should be left alone.

Anticoagulant therapy is not the immediate consideration.

Discussion by Dr. Homan

As we all know, no two patients suffering from coronary occlusion can be treated alike. This is an excellent resume of the over-all care of these patients. It is also true that no two doctors agree exactly on how the average patient should be treated.

For instance in his reference to the patient in acute distress, for which he recommends morphine intravenously, it is my belief that morphine and atropine should be given because morphine is a better stimulator for the heart, and the atropine tends to prevent the likelihood of cardiac irregularities; but I also feel that giving the morphine intravenously is a little too depressing. I can conceive of some cases where this might be necessary, but generally speaking even in the most severe cases I prefer a little delay in the relief of pain rather than risk the severe depression. I do agree, however, that large doses should be given.

Indwelling Catheter

I would like to commend Dr. Bernard also in advising the use of the indwelling catheter for the severely ill patient, even when the patient is semiconscious, since the patient should be allowed to rest as much as possible. It is difficult for many patients to urinate when lying down, especially when they are under the effects of narcotics, and a good deal of straining is sometimes necessary.

In addition to turning the patient, I believe light massage of the arms and legs, toward the body, is of great benefit in keeping up the circulation, and making less likely the formation of thrombi in the extremities.

Nurses a Comfort

I believe that it gives the patient a sense of comfort to have nurses during the most severe period of his illness, because in many instances the floor nurses are not able to answer the light and attend to his wants as quickly as he would wish; however, the nurses should be selected carefully whenever possible and cautioned about bothering the patient and preventing his rest.

I also agree that anticoagulant therapy is not the immediate consideration. Many of us are prone to start anticoagulant therapy a little too soon and I have seen a number of cases over-treated in this respect. This phase of treatment should be handled carefully.

Ralph H. Homan, M. D.

Southwestern Meeting In Tucson Dates Changed

The 1958 Southwestern Medical Association meeting, originally scheduled for Tucson, October 9-11, 1958, will now be held in Tucson on October 23, 24 and 25, according to Dr. Blair W. Saylor, Tucson, chairman of the publicity committee for the convention.

Southwestern New Mexico Meeting in Deming Jan. 16

The annual meeting of the Southwestern New Mexico Medical Society will be held in the Deming Country Club, Deming, New Mexico, Thursday, January 16, starting at 6:30 p.m.

The honored guest will be Dr. Samuel R. Ziegler, Espanola, New Mexico, president of the New Mexico Medical Society. The Dona Ana County Medical Society will act as the host group.

Officers of the Society are: Dr. William B. Cantrell, Truth or Consequences, President; Dr. C. L. Harris, Las Cruces, Vice-President; and Dr. T. H. Klunder, Lordsburg, Secretary-Treasurer.

Coming Meetings

Southwestern New Mexico Medical Society, annual meeting, Country Club, Deming, N. M., Jan. 16, 1958.

American Cancer Society, 6th Annual Seminar, Tucson Inn, Tucson, Arizona, January 23-25, 1958.

Temple Division, University of Texas Post-graduate School of Medicine, sixth medical and surgical conference, Temple, Texas, Mar. 3-5, 1958.

Texas District One Medical Association, annual meeting, Pecos, Texas, Feb. 11, 1958.

Texas State Surgical Society, El Paso, Texas, April 5-8, 1958.

Fifth International Congress of Internal Medicine, Sheraton Hotel, Philadelphia, April 24-26, 1958.

American Fracture Association, annual meeting, Oklahoma City, Oct. 1-3, 1958.

Southwestern Medical Association, annual meeting, Tucson, Oct. 23-25, 1958.

ORIGINAL ARTICLES

Complications Resulting From Fractures of the Extremities*

By W. Compere Basom, M.D., El Paso

This is an extensive and important subject. Many of the complications can be avoided. Others, however, unfortunately cannot be avoided. The extent of trauma may be the determining factor.

If the complications are to be avoided the fracture must be first diagnosed. In this day and age of multiple fractures with severe trauma this statement is not trite. In many instances the patient is quite befuddled and may have several fracture regions other than the main one presented. The individual's general condition and the other injuries which may possibly be present should be carefully evaluated and treated. Then the management of the fracture should be carried out. Careful and adequate reduction is very important. Reduction must be maintained until adequate union has been secured. Physical therapy and rehabilitation may be absolutely essential for a good result. Careful follow-up visits over an adequate post-trauma period are very necessary.

Limited Joint Movement

One of the most frequent and annoying complications following fractures in the extremity is joint limitation of movement; either a complete fibrous ankylosis intra-articularly, incomplete one or a joint contracture with limited range in one direction. Early motion, adequate, but proper casts and fixation devices may help avoid this complication. For instance, in the case of a Colles' fracture the fingers should definitely not be immobilized at all. The cast should merely extend to the distal palmar crease leaving the metacarpal phalangeal joints free. Actually I prefer a control of the fracture with two splints, padded with two layers of sheet wading each. One splint is placed over the dorsum of the hand and the dorsal and radial aspect of the wrist and forearm area. The other one is placed in the palmar part of the hand

and covers about the palmar aspect of the forearm and its ulnar side. In this manner, careful control of the distal radial fracture can be maintained by light pressure around the dorsal and radial aspect of the distal fragment and careful counter pressure in the interosseous space of the forearm and the ulnar side of the forearm. A circular plaster is fixed to the upper forearm part of the cast and extends about the elbow to the mid or upper arm. This gives a very good fixation of the fragment and yet allows early movement of the fingers, thumb and shoulder. The pressure due to the swelling can easily be relieved by cutting the bandage on each side of the openings between the two splints. If there is quite a bit of swelling or internal pressure, vasodilator drugs or procedures such as parasympathetic blocks can be utilized; bed rest and elevation are important in the acute stage. A general anesthetic with relaxation of muscles for the initial reduction is helpful in correcting displacement.

Post-Traumatic Atrophy

Even so, there are cases of very painful bony atrophy and also patients with osteoporosis and disuse atrophy following fractures of the extremities. By carrying out measures to relieve the pain; by the obtainment of good reduction; by maintenance of good reduction; these conditions may be avoided or at least minimized. Measures to aid the investigation of bone atrophy are also in order. Adequate vitamin, mineral and hormone intake are very important. Activity of all joints other than those which have to be immobilized are important features too.

Post-Traumatic Arthritis

Post-traumatic arthritis associated with intraarticular factors may be a troublesome complication. At times, even loose bodies may form. The actual removal of the loose bodies, at some times, an arthrotomy with removal of the adhesions may be indicated. At times, the post-traumatic arthrosis

^{*}This paper was presented to the Postgraduate Course in Orthopaedic Surgery, El Paso, May 20, 1956.

may be sufficiently severe to indicate an arthrodesis of the joint. Os calcis fractures may be associated with an actual depression of the articular surface. An open reduction with propping up of the articular surface and re-alignment and the use of pull-out pins to hold and maintain position may eliminate the need for arthrodesis in this location. Occasionally, of course, some type of prosthesis may actually be necessary in order to maintain some degree of movement and eliminate the badly roughened joint surface from trauma. In the case of spine fractures, a painful back, herniated intervertebral disc or some other feature may follow this type of injury. A collapse of the vertebral body may occur also. By the use of a brace and careful management the patient may eventually recover. However, surgery and spine fusion may be necessary for relief. In some instances the muscles may become bound to the fracture site by fibrosis, for instance in femoral shaft fractures, and restrict the range of movement of the knee joint. With open reduction and intramedullary rod fixation of these types of shaft fractures when possible, the limited movement of the knee joint from fixation of the thigh muscles usually can be avoided.

At any rate, with the problem of post-traumatic arthritis and post-traumatic joint contractures, the primary consideration must be the associated fracture of the shaft of the bone involved. The fracture must be supported until union occurs and if a cast is necessary and the only way to hold it, then it should be held with a cast until the union is firm. The associated joints can then be mobilized as best possible after that but they will not mobilize any better if mobilizations are attempted earlier prior to bony union.

Ischemia Following Injury

Ischemia is another important complication and one which must be carefully anticipated and treated if possible. At times the vessels may be so severely damaged along with the injury to the bone that it will be impossible to avoid this complication and gangrene will result. However, in many other types of cases, management of the fracture can be utilized to avoid ischemia of the extremity distally. For instance, in supracondylar or transcondylar fractures of the humerus at the elbow in children, femur fractures with Bryant's overhead traction, fractures of the tibia and femur adjacent to the knee, the patient may very well develop ischemia leading on to Volkmann's ischemic contracture. While this contracture may be fairly commonly seen in the elbow fractures, it should not be overlooked in the lower extremity as it can cause just as much disability there and can occur from the simple fracture of the shaft of the femur. On all cases circulation and the pulsations in the fingers, the wrist, the dorsalis pedis or posterior tibial at the foot and ankle should be carefully watched hour after hour following the initial trauma. If the pulsations disappear, then pressure is definitely present. The author has found that open reduction of the supracondylar fracture, evacuation of the hematoma, arrest of hemorrhage and relief of pressure on the vessels, the fixation of the fractured fragments with pullout Kirschner wires is of marked value in the management of supracondylar or transcondylar fractures with impending circulatory loss. This also reduces the possibility of malunion and also seems to encourage full return of elbow joint movement. Adejuate reduction of bony fragments adjacent to any nearby and closely bound down arterial system should be carried out. This is especially important also in the knee region. The anterior tibial artery can be injured in fractures of the upper third of the fibula or tibia. The entire circulation to the extremity can be involved with upper tibial and lower femoral fractures with displacement. The vessels should be explored in the persistent absence of pulsation distally. When completely lacerated, suturing of the major arteries is sometimes successful. One should not hesitate to bi-valve a circular cast in the case of impending circulatory embarrassment to the hand or foot. It is far better to take a chance on losing position of the fracture than it is to take a chance on the loss of circulation with resulting ischemic fibrosis. A circular cast is a rigid fixation apparatus and will not allow for swelling. It should be bi-valved without hesitation. When possible, posterior molded plaster splints can be used far more effectively and safely as far as circulation is concerned.

Gangrene

Gangrene due to injury of vessels or to some underlying vascular condition may be a very serious complication. Relief of pressure or the use of vasodilator measures and surgery with exploration of the vessels, if it seems indicated, can be carried out. Occasionally a sympathetic block or a spinal anesthetic may relieve vascular spasm resulting in impending gangrene. Occasionally a general anesthetic is the only measure which can relieve the situation. It is surprising how much trauma the human body can withstand. Occasionally, however, the trauma may have been too extensive and severe. There may be no possible method with which to save the extremity. Therefore, amputation must be seriously considered. If

possible, it is best to wait until the exact level can be determined. Gangrene plus infection may occasionally necessitate a definite guillotine type of amputation. Severe crushing injuries should be treated in the simplest manner possible. Extensive circulatory damage may be present and added surgery further embarrasses the already diminished circulation. In cases with extensive post-traumatic thromboses of the femoral and iliac veins and vena cava, gangrene may result in one of the other of the lower extremities. Vascular surgery in these instances might possibly improve the situation.

Non-Unions And Mal-Unions

Non-unions and mal-unions are almost inevitable in some locations. In some fracture sites it is almost impossible to maintain good position unless union occurs within a satisfactory length of time. In the case of mal-union the patient should be observed frequently and roentgenographic checkups be taken from time to time. Careful cast positioning should be maintained with change of casts and re-manipulation in some instances. It is very easy for a fracture to displace without the patient realizing it or feeling it and it is all important that this be watched for as best possible and as best can be practical. Fractures of the neck of the femur, of the lower third of the tibial shaft, humeral shaft fractures, ulna shaft fractures and fractures of the body of the carpal navicular are frequent sites of non-union. Probably the intraosseous blood supply is thrombosed. During a bone graft procedure the bone is found usually to be hard, white and avascular on one side or both, of the fracture site. Adequate immobilization, adequate time and length of immobilization are all important. In the case of many of these fracture sites it is possible to use very strong internal fixation apparatus which will lessen the possibility of mal-union and increase the possibility of union. Also if the fracture can be firmly fixed internally, it is possible to avoid weight bearing and yet allow mobilization of the joints and eliminate the need of plaster cast. This will tend to reduce the incidence of joint contractures, ankyloses and fibrosis. In this age of internal intramedullary fixation, I would nevertheless like to point out that in the case of the forearm bones and the fractures of the shaft of the tibia, plates carefully applied and carefully managed post-operatively can give excellent results. Smith-Petersen nails are excellent for maintenance of reduction of femoral neck fractures. Bone-grafts and screws can be added if on check up during the open reduction procedure, the fracture is still found to have movement in it. With open reduction for fractures of the

femoral neck, the head can be de-rotated into position. Transverse fragments of bone and soft tissue periosteum can be removed from the fracture site and the fracture can be tested for movement. By this procedure of open reduction for femoral neck fractures, a high rate of union has been obtained. However, the incidence of avascular necrosis of the femoral head has not been altered; it is still the same as with the blind nailing procedure. Interestingly enough the incidence of avascular changes in the femoral head also is approximately equal in cases of fractures of the femoral neck treated without surgery and in cases involving dislocation of the hip joint.

In some cases, early open reduction with removal of soft tissue interposition will aid in the obtainment of union of fractures. In other instances, excision can be carried out, such as fractures of the spinous processes in the vertebral area.

Infection And Osteomyelitis

Infection is always a possible complication in fractures. Compound fractures usually are associated with a fairly high incidence. However, noncompound or so called simple closed fractures may also have infection occasionally, probably from a hematogenous route. Post-operatively, infection is one of the serious problems in orthopaedic surgery. One should be sure that the risk of this complication is justifiable before proceeding with the open reduction. The percentage of post-operative infections is low. When it does occur, it is wise not to remove the fixation material, but merely leave it in place so that at least there will not be a mal-position as well as an osteomyelitis present. Very careful attention to operative room technique is all important in the prevention. In compound fractures, careful cleaning and debridement, usually under general anesthetic, to allow thorough exploration of all the wounded area is all important, Routin antibiotics and medications, in all operative cases can be helpful. Resistent micro-organisms, however, are appearing and from time to time an infection may be found which will not respond to any medications of the present day. In attempting to avoid infections, all fractures should be managed as conservatively as possible and consistent with present day standards.

Aseptic Necrosis

Aseptic necrosis may follow certain fractures particularly that of the femoral neck or subcapital fractures. The carpal mid-scaphoid bone and occasionally various other types of intraarticular fractures with the blood supply damage

may cause an avascular or aseptic necrosis of bone. This may require excision, possibly replacement with a prosthesis at times. Adequate reduction with prolonged absence of use and weight bearing, bone, grafting, occasionally may aid in the elimination of this very serious and disabling type of complication.

Nerve Injuries

Nerve injuries should be diagnosed and explored if possible, early. Primary repair is much more likely to give good eventual outcome. At times, a sensory nerve branch caught between fractured fragments may cause severe pain and operative intervention will give immediate relief. The pressure of the bed and cast and fixation materials such as splints and braces should be avoided on the prominent and vulnerable area such as the ulna nerve at the elbow, the peroneal nerve at the fibular head, median nerve at the wrist level and the like.

Pressure Necroses

Pressure necroses at times may be impossible to avoid but should always be thought of and every measure possible should be taken to avoid them. With bed rest elderly individuals particularly those with a prominent sacrum, require frequent turning and careful skin hygiene. An underlying sheep skin may be helpful in preventing the necroses. Open reduction of fractures of the hip region in elderly individuals may be helpful in getting the individual up and about more comfortably. In these elderly patients the procedure in our hands is not considered to be an emergency. The patient is first allowed to recover from the effects of the pain of the injury. During that time the patient can be evaluated and can be carefully improved with transfusions, intra-venous infusions of glucose and multiple vitamins. Other necessary measures also can be carried out. Then the open reduction can be done. The mortality rate, we feel, will be much lower if this more conservative attitude is adopted.

Patients treated with casts should be well padded over their bony prominences. If the patient says that the cast hurts, then it is quite simple to explore the cast with the present day, excellent electric cast saw and thereby eliminate the risk of localized pressure necrosis.

Although the present day plaster is excellent, it is possible to have the patient's skin endangered by excessive heat. This can be avoided by thorough aeration and drying of the cast and the avoidance of allowing it to rest on plastic covered bed clothes which retain the heat excessively.

Soft tissue loss is a problem and may occur with the same injury which produced the fracture. A patient who has a definite contused soft tissue area, over the fracture site should be treated conservatively if possible. The soft tissue should be given adequate time to recover. An incision through an area of this type, early, may encourage sloughing; whereas a conservative management might allow recovery of the contused soft tissue area. Surgery can therefore be carried out at a later date much more safely than at an early date with this type of problem. In avulsed regions, plastic surgery may be necessary. Burns with loss of soft tissue over the bone such as the anteromedial surface of the tibia may result in a so called shale sequestrum due to interference of the blood supply of the periosteum. The superficial cortex of the bone is merely removed down to viable bone to allow firm healing of the bed which will in turn allow successful skin grafting.

Fat Embolism

Fat embolism may be a serious problem. In the first few days following severe injuries such as femoral, pelvic or extensive type fractures it is wise to have the patient's blood pressure checked at hourly intervals. The hemoglobin and red cell count should be done every six to twelve hours and if the blood pressure falls, the pulse rate rises, or if there is a diminution in the percentage of hemoglobin or number of red cells, patient should be given a transfusion immediately. The urine can be tested intermittently for fat. Some authorities feel that fat embolism is merely a syndrome of shock and that a transfusion properly timed may be life-saving.

Bone Loss

Extensive fractures of bone with actual osseous loss creating defects of the shafts of the bones, such as might be found at times, with the femur, with the tibia, with the ulna, radius or humerus can be bridged with bone grafts. At other instances it might be better to use a Huntington type of procedure in which the fibula is fused superiorly and inferiorly to the tibial shaft. Over a period of time a hypertrophy of a fibula takes over the activity and weight bearing stresses of the tibia.

Summary

An attempt has been made to discuss some of the complications which may result from fractures of the extremity. This is an interesting subject. Actually, in attempting to avoid the complications, the very best grade of practice of orthopaedic surgery is required.

520 Montana St.

Emotional Factors in Rheumatoid Arthritis

By Evan Calkins, M.D., Assistant Physician, Massachusetts General Hospital; Associate in Medicine, Harvard Medical School, Boston

This is the sixth of an outstanding series of seven articles covering the effects of emotional stress in the practice of medicine. The articles were prepared for a symposium delivered in January at the Tufts-New England Medical Center in Boston.

SOUTHWESTERN MEDICINE wishes to take this opportunity to express its great appreciation to the Bulletin of the Tufts-New England Medical Center and its editor, Dr. Robert P. McCombs, for making this important series available for publication.

SOUTHWESTERN MEDICINE is proud to have the opportunity to publish the articles comprising this symposium on emotional stress which is believed to be the most complete and thorough discussion of this subject.

Next month: "Emotional Factors in Rheumatic Diseases: Their Role and Treatment," by Peter J. Warter, M.D., Chief of Department of Medicine, William Mc-Kinley Memorial Hospital, Trenton, New Jersey; Assistant Professor of Medicine, Hahnemann Medical College, Philadelphia.

I must confess my assigned task is not an easy one. Though definitive information is lacking, clinical experience from the time of the earliest Greeks has convinced nearly all writers, as Llewellyn Jones1 has said, "that mental shock, continuous anxiety and worry may determine the onset or provoke an exacerbation of rheumatoid arthritis."

Furthermore, it is evident to all physicians who treat this disease that the emotional reactions of a patient may have a great deal to do with the eventual course of his disease.

Objective studies aimed at exploring these interrelationships of a deeper level are difficult to perform and to date have yielded inconclusive results.

Paradox

Faced with this paradox I shall divide this informal discussion into two parts. First, I shall review some of the reports dealing with emotional factors in rheumatoid arthritis, indicating methods of approach which have been used, and second, I will outline some of my own thoughts concerning types of emotional problems which these patients present to the internist and how, on a rather superficial and supportive level, they can be met by practicing physicians.

The first step which most physicians take in attempting to document an impression based on clinical experience is to record the incidence of the variable in question.

For example, Short, Bauer, and Reynolds,2 in their analysis of nearly 300 cases of rheumatoid arthritis, conclude that some sort of stress, emotional, physical, or both, preceded the onset of the disease in one quarter of the cases.

Thomas,³ on the basis of his psychiatric studies, concluded that significant emotional disturbance preceded the onset of active arthritis in each of 31 patients. Boland,4 however, found significant emotional factors in only one of 100 soldiers, primarily draftees, who had developed rheumatoid arthritis.

Conflicting Results

A few groups of investigators have attempted to obtain more meaningful data by determining the incidence of emotional stress in parallel groups of rheumatoid and control patients. Yet even these have yielded conflicting results.

For example, Cobb, Bauer, and Whiting⁵ studied 50 patients with rheumatoid arthritis by the following method. After a complete medical history had been obtained, each patient was interviewed for

From the Medical Services of the Massachusetts General Hospital and the Department of Medicine, Harvard Medical School.

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approximately 1 hour by a social worker, who obtained a history of what seemed to be the most significant and emotionally taxing events in the patient's life.

Each historian (the physician and the social worker) then compared their histories to see whether exacerbations in the disease coincided with psychic trauma. A close relationship was observed in 21 patients, a doubtful one in 12, and no correlation in 17.

Of 25 control patients with varicose ulcers, there was a good correlation in only 3, and none in 22. On the other hand, Lewis-Faning,⁶ in the study sponsored by the Empire Rheumatism Council, reported on a much larger group of patients who were studied in a somewhat different manner.

Each patient was given a list of potentially upsetting events and circumstances and stated whether any of these had occurred at or near the time of onset of the disease. An equal number of control patients, taken from the hospital population (chiefly cases with fractures, burns, or minor operations, matched for age and sex) were interviewed in a similar manner.

There were no differences in the incidence of these potentially upsetting events in the two groups of patients.

Subject To Criticisms

Both of the above studies are subject to certain criticisms. In the former investigation one wonders whether the social worker, in so short a time, could have obtained a fair appraisal of the patient's personal problems.

The latter investigation does not permit consideration of the possibility that a given event might have been much more upsetting to the patient who was about to come down with rheumatoid arthritis than it was to the control patient.

Because of the inevitable shortcomings of this sort of study, the deeper emotional patterns and stresses of limited number of patients with rheumatoid arthritis have been studied fairly extensively by psychoanalysts with two purposes in mind: first, to determine whether patients with this disease exhibit a certain personality type; and second, to try to determine whether there are emotional events which could prove more consistent triggers to disease activity than social events.

Personality Patterns

The various descriptions of the personality patterns of the rheumatoid arthritic patient, delineated by various independent investigators, have been remarkably similar. Although they have been explored briefly in men,⁷ most studies⁻⁸¹¹ have concerned women.

She is described as being a very immature, withdrawn, inadequate individual, who has never achieved emotional independence from a domineering parent, usually her mother. Therefore, she develops conflicts over dependence, and in her denial of it assumes an assertive, masculine role.

This manifests itself in a great interest in sports and other physical activities and in doing things actively for other people. When disease, injury, old age, or other circumstance denies the patient the opportunity of action and forces her into a dependent position, the conflict becomes intolerable; the muscular tensions and spasms, denied their natural outlet, are thought to relate to the onset or exacerbation of the arthritis.

Male patients with rheumatoid arthritis have been described as quiet, submissive, compulsive, unambitious men, who struggle to suppress markedly hostile, aggressive feelings directed toward stronger figures where goodwill was important. Most of them were avid devotees of sports and physical activity.

Objective corroboration of these analytic studies has been described in patients with rheumatoid arthritis on the basis of both Rorsharch and handwriting analysis.¹²

On the other hand, Ludwig¹⁰ and others point out that this emotional pattern is in no way specific for rheumatoid arthritis.

Psychosomatic Diseases

It is also seen in other psychosomatic diseases, notably ulcerative colitis.

Lihn *et al.*¹³ showed in a study of twenty patients with degenerative arthritis, a disease which all people eventually develop, that the majority of them, too, displayed this same sort of emotional pattern.

Indeed, as everyone knows, and even the recent issue of *Life* magazine pointed out, many otherwise normal American women possess a similar emotional pattern. It cannot be said, therefore, that present evidence demonstrates that there is any one type of individual who is more prone to develop rheumatoid arthritis than any other disease.

Detailed longitudinal studies of a small number of individuals with rheumatoid arthritis¹⁰ have shown, in many, a striking chronologic association between severe emotional stress and increased activity of the disease. Unfortunately, due to the

extremely time-consuming nature of the method, the patients have, for the most part, been ones who were referred by internists because of emotional difficulties.

A carfully controlled study of this sort would constitute a very ambitious undertaking and has not, to my knowledge, been attempted as yet.

Joint Inflammation

Any consideration of evidence attempting to relate emotional factors with the onset of arthritis must include some mention of possible mechanisms by which the emotional stresses might result in joint inflammation. Evidence of this sort is beginning to be accumulated in the field of intestinal diseases by Wolff and others.¹⁴

Unfortunately there are only a few analogous studies regarding the skeletal system which have been reported. In one interesting study Patterson *et al.*¹⁵ compared the changes in skin temperature, in response to stress, in 25 rheumatoid patients and 25 controls.

In each group, emotional stress was followed by falls in skin temperature. This was suggestively but not conclusively greater in the patients with rheumatoid arthritis. Gottschalk, ¹⁶ in a similar, though more elaborate study, compared the electromyographic pattern of a group of 6 patients with rheumatoid arthritis undergoing analysis, 6 patients with rheumatoid arthritis not undergoing analysis, 6 hypertensive patients not undergoing analysis, and 6 normal residents undergoing analysis.

The patients were studied in a resting state and during mild physical activity. The patterns showed that the muscular activity was greatest in the rheumatoid patients who were not undergoing psychoanalysis.

Muscular Tension

These data, and others like it, offer some evidence that there may indeed be greater muscular tension and sympathetic activity in patients with rheumatoid arthritis than in control patients.

On the other hand, it must also be recognized that in rheumatoid arthritis there is pathological evidence of areas of cellular infiltration in the muscles, peripheral nerves and sympathetic ganglia. Truthermore, peripheral vascular manifestations are often concomitant, or antecedent, to articular manifestations in this disease.

It would seem more likely that changes of the sort noted should be attributed to pathological changes secondary to the disease, than to psychodynamic influences underlying it.

In summary, about all that can be said is that

in many patients with rheumatoid arthritis, emotional stress may be followed by periods of increased activity of the disease.

While it seems reasonable to conclude that emotional turmoil is one factor which may precipitate an exacerbation of the disease, it would be wholly unjustified, on the basis of present evidence, to conclude that rheumatoid arthritis is a true psychosomatic disease. Furthermore, the mechanisms by which emotional stress may contribute to disease activity remains a mystery.

Therapeutic Problem

Despite our ignorance concerning the psychological mechanisms at work in rheumatoid arthritis, patients with this disease present a serious therapeutic problem, the solution of which demands consideration of the apparent psychological as well as the physical needs of the patient.

Even without detailed psychological study, I think we can agree that rheumatoid arthritis patients present a number of psychological problems which constitute potential roadblocks to successful management.

Whether or not emotional upsets precede exacerbation of arthritis in a greater frequency than they occur in a control population, we are all impressed by the fact that many of our arthritis patients *feel worse* at times of severe emotional stress.

Conversely, I think we can agree that the pains and limitations of arthritis seem almost designed to provoke the greatest possible strain on one's emotions.

The extreme discomfort; the unheralded exacerbations, which act as a constant sword of Damocles; the interference with normal mobility and activity, whereby patients may seem to be in an interminable self-imposed strait jacket; and the uncertain future provide in extreme instances an almost diabolical combination.

Nothing To Do

Next, there is the conclusion all too often stated by our patients, "In other words, doctor, there's nothing to do." Although in recent years, the advent of cortisone and other agents has lessened this plea, in a sometimes regrettable fashion, the serious hazards and side effects of these agents, plus their proven inability to arrest the disease or prevent its deformities, leave the so-called conservative therapy as the mainstay of treatment.

While it is relatively easy for the physician to convince himself that his regimen of baths, aspirin, rest, and exercise represents "doing something" for the disease, the patient is all too often unimpressed. Finally, and perhaps most important, is the fact that if we are indeed successful in convincing a previously active patient of the value of the conservative program, implemented as it is by frequent visits to the doctor with full discussion of his personal problems, a comfortable bed, and a host of pills, we must be fully aware that such a program often encourages the development of a state of invalidism from which the patient may never recover.

Here, then, is an exceedingly tough therapeutic situation. Whether or not the emotions have played any role in setting the stage for this drama, the emotional pattern of the chief characters, the patient and the physician, clearly play a very major role in determining the plot from that time on.

While I have by no means worked out a formula for the successful resolution of these interwoven and complex factors, there are a few principles which I find useful in my practice.

Gains Insight

First, of course, is a real interest in and attention to the patient, his personal problems, and his reaction to his diesease. The rewards of this are varied. At the very least one gains an insight which makes the patient and his problems far more interesting than merely a mechanical one, involving, say, joint mobility.

As Dr. Peabody said, ¹⁸ "The secret of the care of the patient is caring for the patient"—and to care for a patient one must get to know him. Not infrequently, one discovers factors present in the patient's life situation which are causing considerable emotional stress, or which result in his deriving secondary gains from being sick—take, for example, the patient recently seen in our clinic who is the only member of his family who works as a laborer rather than a professional man.

For him, his arthritis, crutches and wheel chair may well provide a wonderful excuse—a life of "forced" invalidism rather than one of accomplishment.

Second, convince the patient that there is something to do and that it can be successful. Explain the reasons for the program you are suggesting, and emphasize that success or failure will depend in large part on his own efforts.

Happily, the exercises provide one active release for the patient—a clear demonstration that there is something he *can* do. This positive approach is also enhanced by emphasis on what intellectual and recreational activities the patient *can* do despite his disease.

He must be taught, above all else, that by accepting certain limitation he can continue to be an active, effective individual—in other words he must learn to live with his disease. Vocational retraining may be very helpful in this regard.

Identify Himself With Patient

Third, a physician should identify himself with each and every phase of the patient's medical management. This involves not only incidental medical illnesses, but especially the various phases of the arthritis program which one ordinarily relegates to medical specialists such as the physical therapist, occupational therapist and others.

This idea was given to me by a lawyer whom we were following in the Phillips House—who pointed out that, except for an initial interview with a physiatrist, he had carried out his vigorous exercises, Hubbard baths, and so forth for several weeks without supervision other than by the physical therapy technician. "How do I know she's doing it right?" he asked. "How do I know the exercises won't cause a heart attack?" The fact that he died 6 months later at another hospital of a heart attack, while doing his exercises, serves to further emphasize his point.

It stands to reason that since so much of the active therapy falls into the hands of these therapists, the physician will be able to insure an optimal program and will gain much in the patient's eyes by identifying himself with it.

Too Much Importance On One Drug

Fourth, do not permit the patient to put too much importance on any one drug or cure. Whether it is cortisone, butazolidine or gold, one must stress that it is not a cure-all but only one adjuvant to the over-all program.

In this way the patient will avoid the disillusionment of pharmacological failure, and avoid distraction of his attention from his important job, which is learning to handle himself in a manner which will help heal his disease.

Fifth and last, avoid, if possible, the curse of invalidism. It is obvious, as mentioned above, that this is sometimes exceedingly difficult to do both because of the patient's basic personality and the severity of the disease.

The big problem is recognition of the patients who present especially grave risks in this regard, so that one can modify the program accordingly. I think there are several important danger signals.

Slow Recovery

One of these is the history of excessively slow recovery following a previous acute illness. Frantic

hyperactivity may cloak hidden doubts about a patient's own inner resources and should suggest the possibility that release through invalidism might, in the end, provide the easiest way out.

The physician should likewise be concerned by those individuals whose vigorous protests at the initiation of a conservative program are rapidly silenced by obvious enjoyment of the regimen. The importance of recognizing each of these and other reactions to chronic crippling disease cannot be overemphasized.

Faced with the choice of abondonment of most of the tenets of the conservative program, or creation of a full-time professional invalid, I would not hesitate to choose the former course.

In the last analysis, therefore, with arthritis, as with the other diseases mentioned this afternoon, what really counts is not so much telling a patient or the referring physician what he ought to do, as convincing the patient of the merits of the program and seeing that it is carried out in the best possible manner. Each of us has his own methods of putting this difficult objective into effect. Let's hope they are all successful!

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Sudden Death During Labor and Puerperal State

By Frederick P. Bornstein, M.D., El Paso Three cases presented at staff meeting of Providence Memorial Hospital, October 1957

In few areas has medicine shown as much progress as in the field of maternal mortality: death of the mother in the puerperal state has become a rarity. Even those cases which occur represent mostly diseases happening coincidentally to pregnancy and not inherent complications. Recently, I had occasion to observe three such cases on which complete autopsy findings were obtained. I think they are unusual enough to warrant publication.

CASE 1

This 20-year-old woman, Para II, Gravida II had an uneventful pregnancy and normal delivery on September 2. At no time did she have any hypertension or albuminuria. Twelve hours after delivery she started to complain about dizziness and headache. Her blood pressure went up to 220/110. Oliguria developed, not accompanied by albuminuria. She sank into a coma and died 24 hours after delivery.

Autopsy revealed a young woman, measuring approximately 165 cm. in length and weighing approximately 60 gk. The internal genitals showed an essentially normal post-partum state. The liver was somewhat smaller than usual. The right lobe on the superior and inferior surface showed numerous confluent areas of hemorrhage. The cut surface showed numerous irregular hemorrhages of the type commonly associated with eclampsia (Fig. 1). The brain showed extensive edema, especially in the left hemisphere. The left ventricle was filled with blood and a large hemorrhage had destroyed most of the white substance of the left hemisphere.

Diagnosis: (1) Cerebral hemorrhage; (2) Diffuse hemorrhage of liver, eclampsia type.

Comment: There is no question that the findings in the liver are characteristic of post-partum eclampsia. However, there exists reasonable doubt that this eclampsia in itself would have produced death. The brain changes suggest the following course of events:

Most likely this patient had a congenital aneurysm of one of the major branches of the arteries of the circle of Willis. The sudden increase in blood pressure due to eclampsia produced a rupture of this aneurysm with subsequent cerebral hemorrhage and death. Cerebral hemorrhage in young people, although fairly uncommon, constitues a major cause of sudden unexpected death in apparently healthy young people. This is also demonstrated by the second case.

CASE 2

This 27-year-old woman, the mother of several children, had an uneventful pregnancy and a normal delivery. A few hours after delivery she became comatose and a spastic paralysis of the left arm manifested itself. Her blood pressure remained normal. The neurological symptoms progressed rapidly, producing a spastic quadriplegia and the patient died 12 hours post-partum.



Figure 1. Liver, typical changes of eclampsia

Examination of the chest and abdomen at autopsy was not remarkable. There were the usual normal post-partum changes. The brain weighed 1200 grams and was markedly edematous. On sectioning, again a large cerebral hemorrhage was found which originated in the neighborhood of

From the Pathology Department, Providence Memorial Hospital, El Paso

the left ventricle (Fig. 2). The hemorrhage had broken through to the right side and filled the right, third and fourth ventricles.



Figure 2. Brain, extensive cerebral hemorrhage

Comment: In this particular case the hemorrhage was not preceded by any rise in blood pressure and the whole sequence of events must be considered totally unrelated to pregnancy and labor.

CASE 3

This 23-year-old woman was admitted with fever, cough and generalized aches and pains. Last menses December 10, 1956. Patient, term pregnant, had gone into labor 10 hours before admission.

Examination revealed a woman, term pregnant, dyspneic and coughing, with temperature 103, pulse 120, respiration 52, blood pressure was 110/70, heart sounds quiet. The clinical impression was left ventricular failure, X-ray suggested pulmonary edema. Antistreptolysin titer was 250 units, Hb. 12 percent, white count 14,000 the urine showed 3 + albumin. Therapy consisted of intensive digitalization and aminophyllin. Uterine contractions continued, The patient became rapid-

ly worse and died 48 hours after admission.

Autopsy revealed a young woman approximately 160 cm. in length and weighing approximately 65 kg. The external appearance corresponded to term pregnancy which was found in a normal condition. The heart was rather small. The pericardium was smooth and glistening, with some petechial hemorrhages in the left apex. On the superior margin of the mitral valve on all leaflets, there were present numerous tiny grayish verrucous vegetations, permitting a gross diagnosis of acute verrucous endocarditis. On microscopic examination, these verrucous deposits were composed of fibrinoid material. In addition, microscopic examination of the myocardium revealed marked interstitial edema and perivascular infiltrations of lymphocytes and plasma cells.

Comment: Although, I was unable to demonstrate Aschoff bodies, the general histo-pathological picture and the level of the antistreptolysin titer make it quite certain that this patient had an acute rheumatic endocarditis and myocarditis.

It has been my observation that those rheumatic patients who become rapidly decompensated who do not respond to digitalization and who die rather quickly on autopsy show an acute, active myocarditis. This again, then, is a case where an independent disease coincided with a pregnancy and this disease is primarily responsible for the death of the patient.

SUMMARY

These three cases are reported of rather young women who died in labor or in the puerperal state. In all three cases, an intervening disease was the main cause of death, a disease of a type which frequently kills people of this age group without the complication of pregnancy. In a strict sense, these cases cannot be considered "maternal death".



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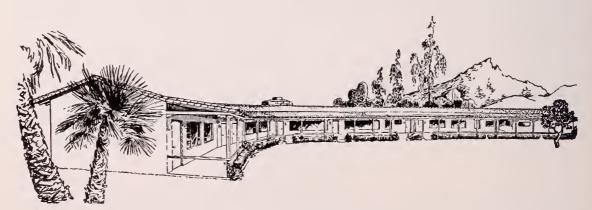
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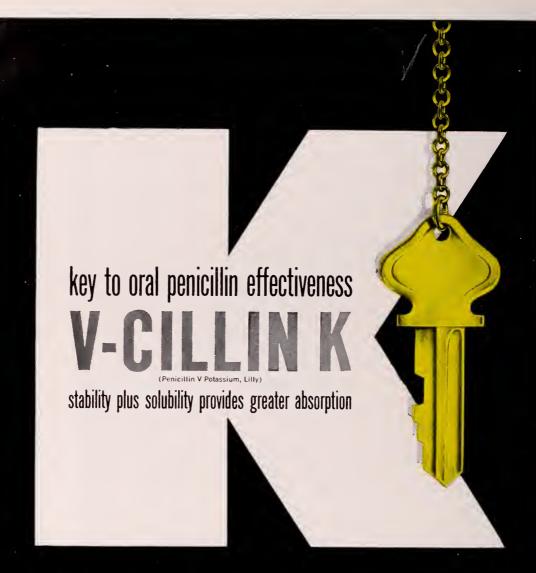
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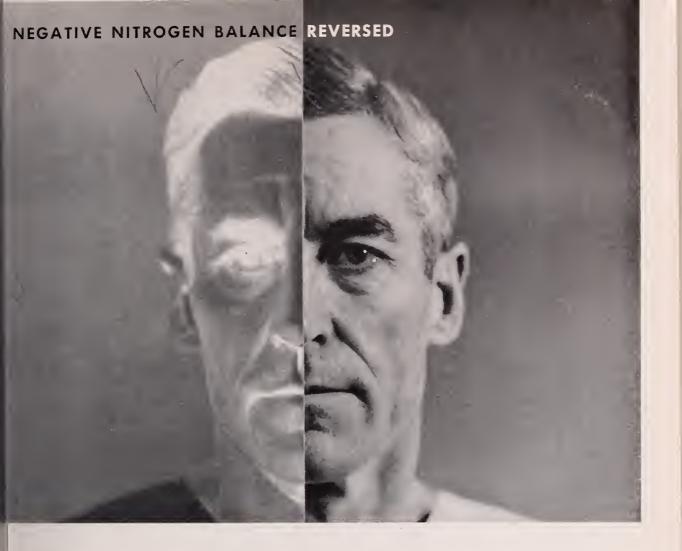
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^{1.} Axelrod, A. E.; Beaton, J. R.; Cannon, P. R., and others: Symposium on Protein Metabolism, New York, The National Vitamin Foundation, Incorporated, (March) 1954, p. 100.

^{2.} Proceedings of a Conference on the Clinical Use of Anabolic Agents, Chicago, Illinois, G. D. Searle & Co., April 9, 1956, pp. 32-35.

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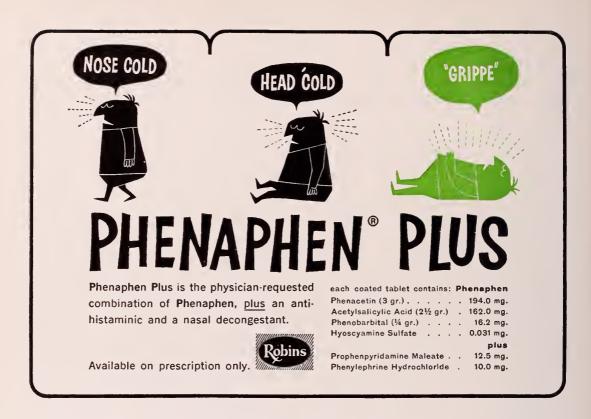
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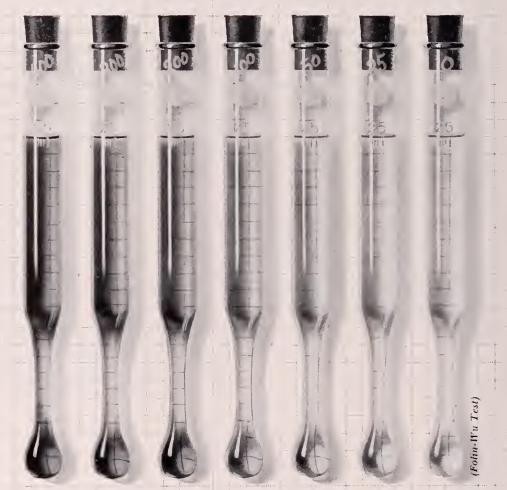
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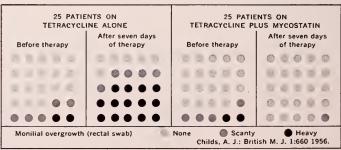
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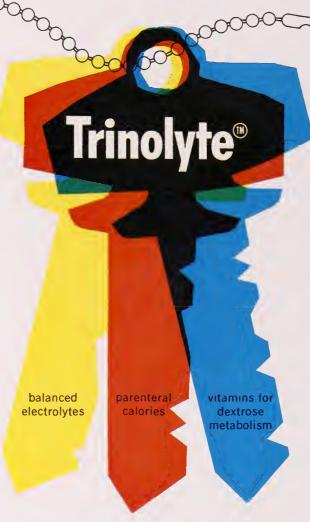
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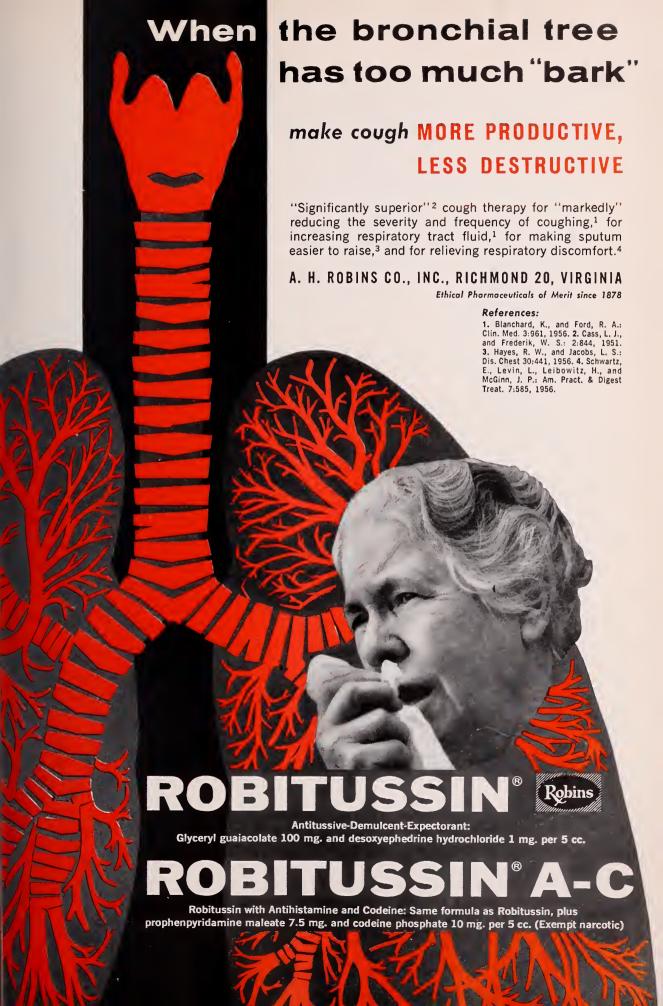
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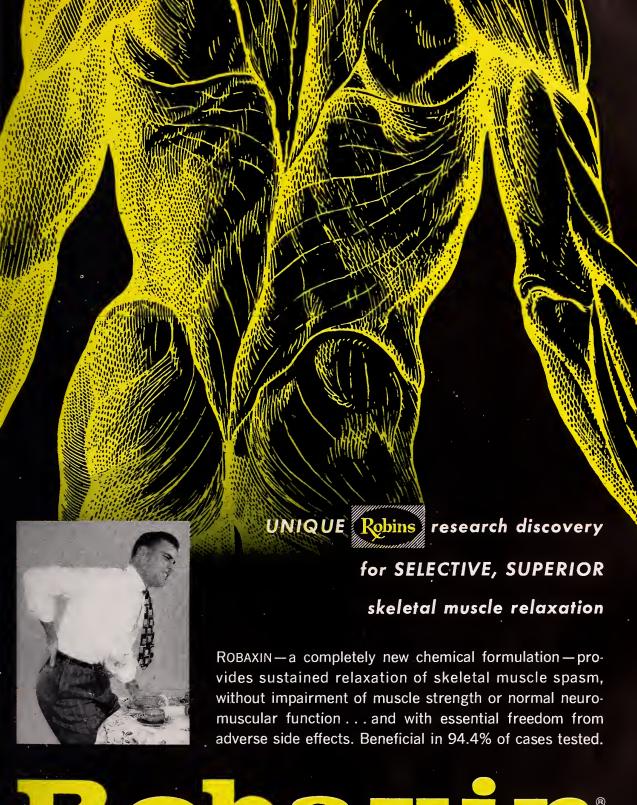
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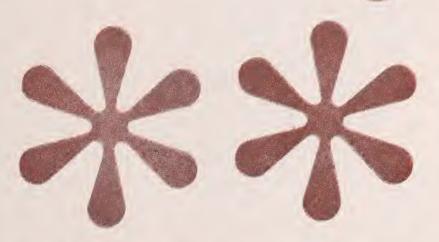
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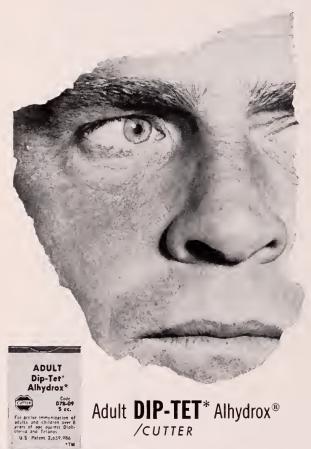
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¹Edsall, Geoffrey: Am. Jour. Public Health 42:393-400, 1952. ²Long, E. P. and Sartwell, P. E.: Bull. U.S. Army M. Dept. 7:371-385, 1947.

³Editorial, New England Jour. of Med. 237:411-413, 1947. ⁴Edsall, Geoffrey; Altman, James S.; and Gaspar, Andrew J.: Am. Jour. Public Health 44:1537-1545, 1954.

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Southwestern MEDICINE

VOL. XXXIX

FEBRUARY, 1958

No. 2



ORIGINAL ARTICLES

The Broad Symptomatologic Spectrum In Injuries of the Cervical Spine

By I. WILLIAM NACHLAS, M.D., Baltimore

It has long been known that injuries of the neck can produce manifestations in other parts of the body. The paralysis of the legs that appeared when the neck was broken was easily associated with injury of the cervical spine.

On the other hand, other groups of symptoms, less dramatic in their onset and frequently delayed in their appearance, were not so readily attributed to injuries of the neck until relatively recent times. In the past few decades, partly as a result of the "whiplash" injuries of automobile accidents, it has been recognized that a wide variety of symptoms can be associated with these injuries.

A great deal of study has been directed to the pathologic processes and to the neurologic involvement. As time passes and enlightened experience is gained, newer manifestations are found that must be attributed to these injuries. Some of the clinical pictures are so unexpected that it may be worth reviewing the subject.

Thumbnail Sketches

To illustrate, let us begin with a few thumbnail sketches of case histories.

1. A man in his mid-forties came in with the complaint, "I must have broken a rib". He reported that while drying his back after his morning shower, he suddenly experienced a sharp stab of pain in his right chest.

Some pain persisted, but this was sharply exaggerated when he moved the upper part of his body. A careful examination was made of his thoracic cage, but no fracture could be found in his ribs.

His neck was then examined and here one

found muscle spasm, limitation of motion, and marked tenderness on pressure over the right articular processes of the fifth and sixth vertebrae.

An x-ray of the cervical spine showed considerable arthritic spurring. The neck was immobilized and in a few days the pain in the chest cleared up.

Chief Complaint

2. Another man in his early forties had as his chief complaint a disturbance in the appearance of his left eye. His history revealed that for a number of months preceding his visit, he had had some discomfort over his heart and that he had gone to a physician for an examination.

The physician told him that his heart was in good condition and that the symptoms were those of a myositis, so that he might do well to consult an orthopedist. Because his pains were not severe he did nothing about this until one day he notnced that his left eye-lid drooped. This drove him into seeking a consultation.

Examination revealed a typical Horner syndrome,-miosis, enophthalmos, and drooping of the eye-lid. His head was carried forward and all of the movements of the lower cervical spine were markedly restricted.

X-rays of his lower cervical vertebrae showed marked arthritic spiculation and some of the spurs on the bodies protruded posteriorly.

Physical therapy for the neck was instituted and in a short time the precordial pains cleared up. The patient left the city at about that time and the follow-up of the Horner syndrome was not obtained.

Feared Cancer

3. A young woman came in complaining that

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⁽Presented to the University of Texas Postgraduate School of Medicine, El Paso Division, September 29, 1957)

she was afraid that she had cancer of the right breast. These fears were based on the fact that there was pain in the breast itself.

On examination it was found that she was overweight and had rather pendulous breasts, but no abnormal mass could be felt, nor was there any unusual local tendernes in her breast tissue.

She carried herself so that her head jutted forward, the trapezius muscles were tight, and bending to the left and hyperextension were quite restricted. Pressure over the sixth cervical vertebra on the right articular process gave severe pain.

Treatment was directed to the cervical spine and in a very few days the pain in the breast cleared up.

Right Arm Paralysis

4. A seventy-four-year-old man was sent in for examination and treatment of a paralysis of the right arm. His story was that eighteen days earlier, he was riding in an automobile that was struck in the back.

He was jolted, but he had no particular pain at that time. That evening, however, he developed a stiffness in the neck and a little bit of pain.

There appeared a weakness in the right arm and soon he was unable to raise his arm. Examination of his arm revealed a rather marked weakness of his deltoid, biceps, and supinator muscles.

No sensory loss was made out. In his neck there was marked spasm, restriction of motion and tenderness over the sixth articular process on the right side. Pressure at this point gave pain that was referred to the right shoulder and upper arm.

X-rays showed considerable narrowing of the interspaces between C5 and C6 and between C6 and C7. Treatment consisted of protection of the neck and the use of physical therapy for this region. Within two weeks, most of his power had returned.

Twist of Neck

5. A fifty-eight-year-old man, following a mild twist of his neck, developed a pain in his neck and a weakness in his left arm. Several months later his left leg became weak.

He showed an atrophy of the theuar and hypothenar eminences of his left hand and a weakness of the left leg that led to a mild hemiplegic gait. The reflexes were normal. His cervical spine presented marked osteoarthritic changes.

He was followed for several years during which time his leg weakness increased. On the assumption that he had a spondylosis, he had a laminectomy of the cervical spine and a release of the dentate ligaments.

Following this, his leg weakness eased substantially.

Symptoms Dissimilar

In these five patients, not only were the symptoms dissimilar, but the areas complained of were in different parts of the body. The common denominator was pathology of the cervical spine.

Is there any satisfactory explanation for so many syndromes originating in one area? Yes. We should be able to understand the mechanisms if we look into the anatomy of the cervical spine and its contiguous structures.

This area is analogous to a telephone exchange room in which there has been an explosion. The room itself would show damage.

On the other hand, a number of disturbances would appear in various parts of the building controlled by the switchboard. The silencing of telephones, the ringing of alarm bells, and other complaints would be reported from near and far.

By collecting these complaints and correlating them with the plan of the wiring, the repair man would be able to identfy the location of the trouble spots.

Complex Unit

The cervical spine, like this telephone exchange room, is a complex unit harboring many nerves that control areas near and far in the human body.

Any severe damage in the neck may bring about pain in the neck, but may also cause disturbances in the various parts controlled by these nerves.

To better understand the development of these disturbances, a review of the anatomy of the cervical spine is in order.

ANATOMY OF THE CERVICAL SPINE

In essence, the cervical spine is a firm, though flexible, structure surrounding and protecting the spinal cord. The protective quality is inherent in its bony rigidity. The flexibility is produced by its being divided into segments which are separated from each other by elastic inserts. The whole structure affords a fairly strong though flexible armor to protect the spinal cord.

The spinal nerves that run from the spinal cord through this flexible armor to extra-spinal areas are also given fairly solid protection. The nerves emerge through channels in the elastic interspaces, but are protected from compression forces by bony projections that reach downward and upward from each vertebra.

These projections articulate, and their junctions are maintained by join structures with synovial membranes and firm ligamentous capsules. The nerves lie directly in front of these joints so that they are given bony protection posteriorly as well as superiorly and inferiorly. Anteriorly, the channels are completed by intervertebral disks and parts of the vertebral bodies.

Intervertebral Foramina

These channels, the intervertebral foramina, are from $\frac{1}{4}$ to 1/6 of an inch in diameter, whereas the spinal nerves are from 1/12 to 1/6 of an inch in diameter. The free spaces are filled by loose areolar tissue that also contains vessels.

We thus have a remarkable structure, one that allows considerable motion and yet serves as a solid protective armor for the vulnerable nerve tissues under normal conditions.

Under abnormal conditions, however, this armor may not only fail to protect the nerve tissue but may actually serve as a medium of damaging it. Under a force of sufficient magnitude to break the bone or to disrupt the articulating areas, the rigid casement becomes a shearing or compressing medium that damages the enclosed nerve tissue.

Damage By Vertebrae

In a fracture or dislocation of the spine with displacement, the vertebrae can cut the spinal cord, or in lesser displacements can compress the nerves in the intervertebral foramina.

At the points of movement severe strains may cause soft tissue damage which, though not visible on the x-ray, produce sufficient local swelling to interfere with the function of the nervous tissue.

Actually, even minor injuries, if repeated often enough, and over a long period of time, can produce degenerative changes which through the formation of cartilaginous projections and bony spurs will reduce appreciably the clearance needed for the spinal nerve.

INJURIES

In practice, we find a number of injuries that may cause damage to the nerve structures.

- A. Affecting the spinal cord.
 - 1. Fracture of the cervical spine with major displacement.
 - 2. Dislocations of the cervical spine with major displacement.
 - 3. Dislocation (with cord injury) spontaneously reduced.

- B. Affecting the intervertebral nerves.
 - Fracture of the neural arch of the vertebra.
 - 2. Dislocations of subluxations, unilateral or bilateral.
 - 3. Disk compression
 - (a) With immediate herniation
 - (b) With tearing that leads to delayed herniation.
 - 4. Sprains of the intervertebral joints, as in whiplash injuries or paratrooper's neck, with swelling of capsules.
 - 5. Cumulative strains, leading to osteoarthritis, etc.

C. Avulsion of the nerves.

These injuries may give pain that is localized in the neck. In addition, they may produce remote effects by affecting the nerve tissues in the following manner.

- 1. Spinal cord.
 - a. Section of the cord, complete or partial.
 - b. Cord compression.
 - c. Concussion.
 - d. Localized irritation by spurs, projecting into the canal.
- 2. Spinal nerves.
 - a. Compression in the foramina by fractures or dislocations.
 - b. Irritations by swollen capsules, arthritic spurs or herniated disk tissue.
- 3. Sympathetic nerve fibre damage.
- 4. Blood vessel irritation.

PATHOMECHANICS OF PERIPHERAL PHENOMENA

The effects of major cord damage with peripheral paralysis, spastic and flaccid, sensory disturbances and loss of bowel and bladder control are so well known that they need only be mentioned here.

The localized irritation of the spinal cord by spurs projecting into the spinal canal has received attention only recently and has been reported under the name "Spondylosis".

Under this title there have been described clinical pictures with bizarre arrays of symptoms affecting the lower extremities as well as the upper limbs.

Changes suggestive of multiple sclerosis and even amyotrophic lateral sclerosis have been described. The signs and symptoms have not as yet been formulated into a crystallized syndrome.

It is quite likely that a large group of authentic cases will have to be reported before a definite pattern is evolved.

Disturbances

Pressure on the nerve roots has been known to produce sensory disturbances when sensory fibres are irritated, and motor disturbances when motor fibres are affected. This explanation, however, is not adequate for all observations.

For example, it was found that some patients had precordial pain, like angina pectoris, that could be produced by nerve irritation in the neck.

It would be simple to explain this by saying that the stimuli were affecting the anterior medial thoracic nerve, innervating the pectoralis major, and the anterior lateral thoracic nerve, innervating the pectoralis minor.

But these nerves are classified as motor nerves! Study revealed that protopathic pain, a discomfort that can be quite severe, but is not sharply demarcated, can be projected along compressed motor nerves.

With this explanation one can account for the pseudo-angina pectoris that develops in a patient following injuries of the cervical spine.

Nerve Compression

The mechanism for the production of the stimuli we have been discussing has been nerve compression in the intervertebral foramen. There is, in addition, evidence that referred pains can be produced by irritative lesions of the intervertebral joints and disks without actual compression of the nerve roots.

We know, for example, that children with hip involvement, such as a slipping of the capital epiphysis of the femur, will complain of pain in the knee along the course of the obturator nerve, even though this nerve does not run through the joint where it could be compressed by the displacement.

We believe that this phenomenon is produced as follows. The capsule of the hip joint is innervated by fibres from the obturator nerve.

When these fibres are irritated, the message is sent to the brain where it is interpreted as coming from the obturator nerve ends, so that it is attributed to the knee.

Plexus Dissected

In the cervical spine it has been possible to dissect the plexus to its roots under local anesthesia.

In instances where the intervertebral foramina were exposed and one could determine that there was no compression on the roots, one could produce pains referred down the arm by sticking a needle into the intervertebral joint or into the disk.

The sympathetic nervous system is affected in two ways. Pressure on the roots in the intervertebral foramina also catches the rami communicantes which run through the roots and separate shortly after they leave the foramen to connect up with the sympathetic nervous chain.

It is injury to these roots that produces the Horner syndrome. It is also said that the sympathetic nervous supply to the vascular tissues can be irritated by abnormal pressure and so give peripheral manifestations. Vasospasm and the scalenus-anticus syndrome are said to originate in this way.

CLINICAL MANIFESTATIONS

Let us now consider the various clinical pictures that are met. Most of the syndromes that will be presented have actually been observed by your speaker. A few of those that are listed have not been entirely convincing as to the association between the injury of the cervical spine and the peripheral manifestations, but they have been reported by capable observers so that they are listed here.

- 1. The most serious clinical pictures are, of course, those that involve crushing of the cord in the cervical area. Here we are faced with early death, or if the patient recovers from the immediate injury, with paralyses involving the extremities and frequently with a loss of bowel and bladder control.
- 2. Occipital headaches. It is redundant to say that such headaches can occur as a result of many factors, and patients should be studied from many angles. Since pressure on the first cervical nerve can cause radiation into the occipital region, orthopedic consultation should be included. In a significant number of such patients, these headaches have been found subject to control by the therapeutic test of head traction.
- 3. Temporal pain. It is not uncommon to have patients come in with a complaint of pain that runs from behind the ear, over it into the temple and even as far as the orbital area. Such pains follow the course of the auricular nerves which originate chiefly in the second and third cervical interspaces.
- 4. Drooping eyelids. When this symptom is associated with a small pupil and enophthalmos, one has the Horner syndrome. This can be produced by irritation of the sympathetic nervous system which receives rami communicantes from the lower cervical nerves.

- 5. Neck pains. Such discomforts are easily associated with pathology of the cervical spine. It must be emphasized that these pains are often associated with peripheral manifestaions but the absence of pain in the neck does not rule out pathology in the neck. As an anology one may remind you that frequently aciatic pains in the leg, that originate from nerve irritation in the lower spine, may be present without actual complaint of low back pain.
- 6. Shoulder pains. It is surprising how often patients come in with complaints of pain in the shoulder and yet show no evidence of shoulder pathology. Frequently they report that they have had physical therapy for this joint or even injections of Hydrocortone and x-ray treatments without relief. An examination of the neck will often show the area of involvement to be the cervical spine.
- 7. Pain in the arm. Pains in the arm that originate in the cervical spine follow a course that is not limited to one of the three major nerves. They run down the arm frequently much lower than the elbow as contrasted to the pains referred from a subdeltoid bursitis.
- 8. Paralyses of the muscles of the arms and fingers.
- 9. Numbness and tingling in the wrists and fingers. When such symptoms are found, the cervical spine must be suspect, particularly when the distribution of the sensory disturbance does not follow the exact pattern of one peripheral nerve.
- 10. Angina-like pains. Pains in front of the heart naturally lead one to a careful examination of the heart. It is, however, fairly well established that such symptoms can originate in the cervical spine.

- 11. Pleuritic-like pains are often presented and yet no evidence of lung or pleural involvement can be found. One may find the explanation for these pains in the cervical spine.
- 12. Fractured rib pains. It is surprising how frequently patients who have been in an automobile accident come in with a complaint of pains in the ribs and yet a careful examination of the ribs clinically and by x-ray is negative. Such pains can be felt when the roots of the nerves between the lower cervical vertebrae are compressed.
- 13. Pains in the breasts. A case report mentioned earlier in this paper indicates the association.
- 14. Pains over the kidneys. It is also surprising how low the symptoms of cervical root compression can be projected, particularly along the longissimus dorsi nerve.
- 15. Weakness in the lower limbs. Although many more case reports are necessary to crystallize the clinical picture of lower extremity discomforts originating from irritation of the spinal cord by spurs projecting into the canal, sufficient evidence has already been presented to make it necessary for us to consider this relationship.

CONCLUSIONS

The cervical spine, when disturbed, can be responsible for a number of apparently unrelated clinical pictures. A number of such manifestations has been presented and the anatomic and physiologic links have been described.

Many of these symptoms can be produced by local pathology, but if a careful examination fails to reveal objective local signs to account for them. the physician will often find it rewarding to examine the cervical spine.

University of Colorado Schedules Conference on Edema

A three-day post-graduate conference on "Edema—Its Pathogenesis and Management" has been scheduled March 13-15 at the University of Colorado Medical Center, Denver.

The conference will be devoted to basic considerations and clinical applications of kidney function, edema and diuresis. It is designed to present in a comprehensive manner the problems of pathogenesis and management of edema as

variously encountered in clinical medicine. Special emphasis will be placed on treatment.

Five distinguished guest lecturers and members of the University of Colorado School of Medicine faculty will participate.

A detailed program and further information may be obtained by writing: The Office of Post-graduate Medical Education, University of Colorado Medical Center, 4200 East Ninth Avenue. Denver 20, Colorado.

Emotional Factors in Rheumatic Diseases: Their Role and Treatment

By Peter J. Warter, M.D., Chief of Department of Medicine, William McKinley Memorial Hospital, Trenton, New Jersey; Assistant Professor of Medicine, Hahnemann Medical College, Philadelphia, Pennsylvania

This is the seventh and last of an outstanding series of articles covering the effects of emotional stress in the practice of medicine. The articles were prepared for a symposium delivered in January at the Tufts-New England Medical Center in Boston.

SOUTHWESTERN MEDICINE wishes to take this opportunity to express its great appreciation to the Bulletin of the Tufts-New England Medical Center and its editor, Dr. Robert P. McCombs, for making this important series available for publication.

Rheumatic disorders are of such frequent occurrence that they may be classified as the most common of chronic diseases. Relatively few individuals go through life without having a rheumatic syndrome at some time or another.

Arthritis rarely influences the life span of a patient; however, the disability it produces often makes the patient a lonely individual and affects his social and economic circumstances adversely. Constant misery and curtailed activities tend to tax his "good nature" and make him bitter.

Important Factors

Emotional and psychic disturbances are recognized as important factors in rheumatic diseases. Some observers¹ believe it is the most common aggravation of the rheumatic syndrome.

It has been observed that many patients undergoing emotional stress often exhibit a muscle hypertonia which may cause, and almost always aggravates, musculoskeletal symptoms.

It is frequently noted that these symptoms are alleviated when mental tension is lessened. It would seem rational then that treatment that exerts a beneficial effect on mental stress should prove of value in relieving some of the physical symptoms and in increasing the patient's ability better to understand and tolerate his illness.

The susceptibility of soft tissue to distress associated with the rheumatic problem may be enhanced by physical or emotional trauma, environmental factors, dietary deficiencies, infection and fatigue.

Muscle Tension

Emotional trauma appears to produce local neuromuscular or vascular effects with muscle tension that seem to come and go with the rise and fall of emotional states.

By whatever criteria the behavior pattern of emotionally disturbed patients is measured, the same general conclusion is arrived at, namely, that many individuals have apparently been conditioned from early life to live with taut and tense musculoskeletal systems and with capillary systems under intermittent constriction.

These phenomena are affected by emotional states that hyperactive the hypothalamic vegetative system and the adrenals.

Fear accelerates the metabolic and especially the catabolic processes of cells. Worry also dissipates energy. The deprivation of biologic essentials, accompanied by stress situations beyond the threshold of tolerance, definitely aggravates the disease state.

Several Fears

Every arthritic patient experiences several fears: fear of crippling, economic instability, social deprivation, and disinterest on the part of the family. When an individual is repeatedly subjected to environmental patterns unsuited to his temperament, and concerning which he develops an anxiety tension state, his fear automatically causes him to go on guard. Fear produces muscle tension. This leads to what has been termed neuromuscular hypertension, which appears to be related to the fatigue state.

Fatigue is probably the greatest factor in the genesis of disease. Fatigue may be manifested by such sensations as weariness, lassitude and a decreased capacity for mental or physical tasks. These phenomena are a reflection of the body's functional inefficiency and an indication of its susceptibility to injury.

Fatigue produces weakness that reduces the threshold at which effort produces fatigue. Tension does not allow muscles to relax. Under tension which produces spasm, every motion is a force against a residual spasm, which eventually results in varying degrees of tissue injury.

Individual Museum

The individual is a museum of delicately balanced physiological reactions. Any break in the physiological balance may lead to permanent tissue damage and even invalidism. The symptoms manifested are an expression of the body's attempt to re-establish balance.

The integrity of the capillary system has received very little consideration. It has been shown that soft-tissue changes associated with rheumatoid arthritis affect the normal constitution of the capillary system. Emotional disturbances have been shown to be associated with capillary changes.

There are occasional arthritics whose disease is in remission, but who show visual evidence of the disease. As a defense mechanism against undesirable situations or tasks, they produce false symptoms and restricted motions with which they are all too familiar. They are often able to fool the most astute observer. These problems are occasionally seen in malingerers in compensation cases and in families where sympathy and attention would be otherwise lacking.

TREATMENT

In the management of the patient with rheumatic disease, the physician must be careful not to assign undue importance to one etiologic factor, even though it appears to have an undisputed connection with a particular symptom complex, and to call its environmental biologic relation absolute. A multiplicity of factors is involved in rheumatic diseases.

We are called upon to alleviate pain and to relieve the anxiety state. These patients are fearful, apprehensive and at times very unstable. It is essential to obtain a detailed history of their background — their family, associates, religion, economic status, nature of work and so on. The patient must be viewed and treated as a total entity, and not as a single symptom. His problems should be of as much importance to the physician as they are a concern to the patient. A tense and anxious patient is not in a favorable situation thoroughly to understand the explanations and instructions given him.

Pain Threshold

The pain threshold varies with each individual. The greater the emotional disturbance the lower the threshold. These individuals use dynamic words to try and convince one of the severity of their distress.

The response of the patient to a tried and true

therapeutic program will be more profitable if he can be conditioned to positive thinking. The patient's desire to get well is the crux of a successful therapeutic program.

There have been innumerable approaches to aid in treating the emotional factors of the rheumatic problem. Treatment by psychotherapy must be divided into two groups.

In one, the patient is morose with an impending depressive psychosis: in the second, the emotional states are readily discernible and their conflicts not too deep.

Most all rheumatics are in the second group. The first group of patients must be recognized early and treatment by a psychiatrist instituted.

Patients in the second group must first be made acquainted with their problem by a realistic and reassuring approach. Such a patient must be impressed with the fact that no therapeutic program will be of lasting value unless he allows it to be, and that no drug will work beneficially unless he allows it to do so. He must accept every phase of the treatment as an essential and integral part of his desired recovery.

"Dramatic" Cures

Many of the so-called "dramatic" cures are the result of a conquered frustration or inhibition. The improvement continues if the psychic overlay does not return. When the patient and the physician are fortified with this knowledge, it is safe to embark upon other phases of treatment.

Hypnotherapy has been of definite aid in determining the degree of function possible in questionable cases. It has aided a few arthritics to overcome some of the inhibitions and fears which have plagued them.

I use the word "few" justifiably because this procedure should be used only when the patient has been thoroughly appraised by a psychiatrist. The treatment by hypnosis should be given only by a psychatrist trained in this art.

Chemotherapy may be dramatically effective, but few drugs are equally effective in all patients, even if the patients suffer from the same type of rheumatic disease.

Improved Mood

d-Amphetamine sulphate administered once daily by means of a sustained release capsule*2 has been shown to be an adjunct to other forms of therapy. In many patients, the improved mood produced by this medication has alleviated depression and anxiety.

An interesting and surprising fact was the beneficial effect achieved by nighttime administration

^{*}Dexedrine Spansule® (Smith, Kline and French) †Hesper-C® (National Drug)

of the sustained release capsule. Some patients whose symptoms were more pronounced in the morning found that taking the capsule shortly before retiring did not prevent them from sleeping and resulted in greatly lessened morning pain and stiffness.

The disturbance of the capillary integrity referred to has been aided remarkably by the use of a capsule[†] containing hesperidin, 100 mg, and ascorbic acid, 100 mg, in doses of 1 to 2 capsules three times daily. Experience with this combination over a period of years has supported our concept that the correction of capillary defects enhances the total therapeutic regimen in arthritis.

Sedation Employed

Sedation has been commonly employed in attempting to bring about emotional stability in rheumatics. It is generally agreed that sedatives in various forms must be cautiously used, because people habituate to them more easily than is realized. Sedatives do not, as a rule, improve the reasoning of the patient, but they may temporarily raise the threshold of tolerance to his disease, so that he may better cope with its problems.

The past few years have seen the development of "tranquilizing" or ataractic drugs. Danger lies in their misuse and abuse. The most common danger, according to Dickel and Dixon,4 is that some essentially normal people (1 in 5) taking tranquilizing agents have been "precipitated into psychiatric illness by misinterpretations of their reactions to tranquilizing drugs."

I believe the value of these compounds does not lie in their so-called "tranquillizing" effect alone. The thinking and reasoning of a patient may be more easily molded and conditioned while taking these agents. It is during this period that the physician may be able to instill more confidence and establish a more cooperative desire to carry out his instructions.

Combination

I have reported on the use of a combination of 2,2 diisopropyl-4 methanol-1,3, dioxolane,[‡] 25 mg, and reserpine, 0.25 mg, with definite evidence that this therapy results in better understanding and cooperation on the part of patients with rheumatoid arthritis. I found it easier to "reach" the patient when he was in a relaxed state — and that he was more amenable to therapeutic management.

‡Dimethylane (National Drug)—Avacalm® ¶Atarax® (J. B. Roerig) §Ataraxoid® (Chas. Pfizer & Co.)

evaluate the use of hydroxyzine, 10 mg, as an ataractic agent. It has been very gratifying in many cases to note the improvement in sleeping habits, decreased tension and the improved attitude of patients toward their disease and their problems.

More recently, I have had the opportunity to

This was evidenced by increased initiative and acceptance of responsibility for their own improvement. In an additional study,5 hydroxyzine, 10 mg, was combined with prednisolone, 5 mg, in a group of patients with rheumatoid arthritis who had been maintained on steroids alone for one to three years.

A substantial improvement was noted both objectively and subjectively among most of the patients, as well as increased initiative and responsibility observed with hydroxyzine alone. In some, it was possible to reduce the dosage of steroid without sacrificing the comfort of the patients.

Ataractic Agents

In my experience, these ataractic agents are of great aid in supplementing other therapy in rheumatoid arthritis. However, caution must be exercised so as not to employ the use of steroids with sedation or with ataractic agents in patients when there is even a questionable psychosis pres-

The following rules should guide the physician in his approach to the arthritic patient.

The patient should be reassued sufficiently to allay fear, and every effort made to realize a relaxed state in the shortest possible time. Thus, the tense patient will experience some degree of ease so essential to his welfare.

Human Being

The patient is a human being and must be treated as well as his disease. It is the duty of the physician to guide the patient and it is nature's duty to heal.

Individualized treatment is the rule, not the exception. All phases of treatment applicable to the patient should be surveyed, considered and included.

The physician cannot "help" the disease without the patient's cooperation.

Medicine is still basically an art. The physician possesses that art, which is the ability to use and apply this knowledge.

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Mucoid Adenocarcinoma: Case Report

By W. R. GADDIS, M.D., El Paso

The following case is presented because of its unusual character. Williams¹ has reported 53 cases from his own experience and from a review of the literature.

Shallow, Wagner and Colcher² reported 750 cases with age extremes of 16 to 92 years. Cattell, et al³ reported a series of 164 cases with an age incidence of 31 to 84 years.

It is obvious that malignant disease of the colon is uncommon in the age group under 20 years. These are marked by a high incidence of colloid carcinoma and a high grade of malignancy.

White Male

A white male, born Febraury 13, 1937 was admitted to Hotel Dieu, Sister's Hospital, El Paso, Texas on September 6, 1954 on the service of Dr. Joe Carter with a complaint of pain and swelling of the abdomen for about one month.

He stated that it began with a small lump under his left rib margin about 4 months previously and had been accompanied by intermittent pain and bouts of fever.

He stated that he had lost about 18 pounds in the last five months. There had been a progressive increase in the size of the abdomen with an attendant discomfort. He denied recurrent past history of diarrhea or gastro-intestinal symptoms.

No Bleeding

There had been no bleeding or hemorrhagic diathesis. He had been seen by another doctor locally who had thought he had splenic enlargement due to mononucleosis, or that it might have been a renal mass. This doctor was unable to prove serologic evidence of mononucleosis, and a urological consultation had been unrevealing as to the cause of the swelling and fever.

Past medical history showed the usual diseases of childhood. In the pre-school age he had had a tonsillectomy and an adenoidectomy and an umbilical herniorrhaphy.

Physical Examination

Physical examination on the day of admission to the hospital disclosed a white male of 17 years. He was 5 feet 10 inches tall, weighed 120 pounds and was considered to be in fair nutritional status.

His temperature was 99° F, pulse 105 per minute, and blood pressure 120/90, respiration 20 per minute. There was a questional slight icterus of the sclerae. The posterior cervical nodes were palpable. There was dullness to percussion of the lower third of the right posterior chest as if from liver dullness.

The heart was not considered remarkable. The abdomen was diffusely distended and tight, and a fluid wave was elicited. There was a healed transverse mid-abdominal scar replacing the umbilicus.

The spleen was palpable 2½ fingerbreadths below the left costal margin, and there was dullness of four to five inches over the splenic area in the right lateral position.

The other systems were considered to have no significant abnormalities except that "the post-cervical and inguinal nodes are palpable and shotty, about as expected normally."

Working Diagnosis

The working diagnosis was malignant lymphoma or aleukemic leukemia.

Admission laboratory work gave the following results:

Urine: Sp.Gr. 1.016, alkaline reaction, albumen and sugar—negative. No red cells present. Blood: Red blood cells 4.34 million with 11.5 gms. hemoglobin. White cell count was 7,300 with 66 segmented forms, two stabs, 22 lymphocytes, six mononuclears, one basophile and three eosinophiles. On the same day an alkaline phosphatase was reported as 4.6 Bodansky units. The serum phosphorous was 3.2 mg/100 cc. The total protein was 7.7 gms. per 100 cc.,5.0 grams of which were albumen and 2.7 grams were globulin fraction with a ratio of 1.8:1. The Van den Berg reaction was reported as direct negative, and indirect 0.30.

X-ray examination of the chest and abdomen at the time of admission showed an accentuation of the pulmonary markings in the right lower lobe, and the abdominal film showed "what appears to be some enlargement of the liver and spleen." No other abnormalities could be demonstrated.

No Bile In Urine

On the second hospital day the reticulocyte count was reported as 0.4 per cent. The urine contained no bile. On the third hospital day the blood

Kahn and Eagle were said to be negative. He was of blood group A.

On the third hospital day the cephalin flocculation test was negative. This same day a paracentesis abdominis was performed with removal of three liters of fluid, 100 ml of which was sent to the laboratory. Report of examination of this fluid was as follows: Specific gravity 1.013, Protein 4.0 mg per 100 cc. The cellular content was 180 white blood cells per mm³, 320 red blood cells per mm³, and 290 large cells per mm³, which the pathologist reported as being of a questionable neoplastic nature.

Re-Examination

A re-check roentgenogram of the abdomen after removal of the fluid was reported as "a very marked enlargement of the spleen. The exact size of the liver cannot be determined due to the presence of the large amount of gas in the ascending colon and distal portion of the stomach."

Re-examination of the urine and blood morphology after four days in the hospital was without significant difference from his admission studies. At the same time it was noted that his ascites was recurring at a rapid rate.

At the end of the first hospital week the examiner stated, "the spleen or tumor mass is definitely fixed and does not move with respiration. A review of the films brings up the question of enlarged spleen, sarcoma, dermoid, teratoma or neuroblastoma."

The following day the pathologist recommended exploratory laparatomy because of inability to identify the tumor cells in the ascitic fluid.

Taken To Surgery

On the 13th hospital day the patient was taken to surgery. Gross findings showed a marked distention of the abdomen. In the upper left quadrant there was firm fixed mass which extended to the mid-line medally and to the level of the umbilicus inferiorly.

There was marked hardening and induration of the transverse mesocolon to the left of the mid-line and extending laterally and superiorly, and inferior from this point there was a large irregular mass.

Laterally it was attached to the anterior abdominal wall and the parietal peritoneum. Scattered over the surface of the peritoneum elsewhere there were numerous implants.

The omentum itself was studded with small

nodular areas contiguous with the tumor. A biopsy was taken and the abdomen closed in the usual manner. Postoperative clinical diagnosis was inoperable lymphosarcoma. The pathological report was metastatic mucinous adenocarcinoma of the omentum.

Intestinal Obstruction

The patient's condition continued to detriorate and on the 15th postoperative day intestinal obstruction was diagnosed by clinical and x-ray evidence.

On the 16th post-operative day he was returned to surgery for correction of the obstruction. Transverse colostomy was not technically possible, so a Witzel-type enterostomy was performed in the terminal ileum. His downhill course continued and he expired quietly on the 10th day after the second operation, about 5 weeks after admission.

Post-mortem examination was done on the day of death. The gross anatomic diagnoses were: 1) mucoid carcinoma involving the transverse colon with metastasis to contiguous structures, 2) medastatic-neoplastic implants of the peritoneum, Ascites, 4) obstruction, intestinal, multiple blind loops, 5) pulmonary edema, subacute, 6) gastro-colic fistula, 7, gastritis, subacute, and 8) emaciation.

Microscopic Examination

Miscroscopic examination of the area of the tumor itself showed "extensive neoplasia of the colon characterized by clusters and groups of fairly well differentiated mucinous type cells often lying in an acellular matrix. Mococarmine stains were positive."

The final diagnosis was mucinous carcinoma of the transverse colon with extension to adjacent structures causing final obstruction and death. There was no distant metastasis.

Summary

We have presented a case of inucinous carcinoma of the colon in a 17 year white male. This was a malignancy of the gastro-intestinal tract in which symptoms referable to the intestinal tract were not present, and were mistaken for primary disease of the spleen and liver. Mills Building

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CURRENT THERAPY

Acute Coronary Occlusion

(continued)

Anticoagulant Therapy

By JACK A. BERNARD, M.D., El Paso

With a Discussion by Dr. Lester C. Feener, El Paso

After the physician has controlled the initial episode of pain of a coronary occlusion and the complications, he is confronted with the problem of anitcoagulants. Although there are a few who question the value of anticoagulants in coronary occlusion, statistical evidence favors anticoagulant therapy.

In almost 1,000 cases the mortality was 16 per cent in the anticoagulant treated group as compared to 29 per cent in the control group. Thrombo-embolic complications occurred in 41 per cent of the control as compared to 13 per cent in the treated group.

Some Not Benefited

On the other hand there are a few so called "good risk" patients who are not benefited by anticoagulant therapy. Yet in the vast majority of cases these drugs do reduce morbidity and mortality.

However as the period of bed rest is shortened and early ambulation is instituted, the indication for anticoagulant therapy may be diminished, and as time goes on their almost routine usage may not be indicated.

Since there is now apparent unanimity of opinion that anticoagulants do reduce morbidity and mortality and that they are indicated except perhaps in the rare "good risk" patients, the problem is therefore not whether one should use anticoagulants or not, but which anticoagulant should be used.

Therapy Recommended

Routine anticoagulant therapy — the use of anticoagulants except perhaps for the so-called "good risk" patients — is recommended unless there is a definite contraindication, such as the history of a bleeding tendency or some gastro-

intestinal lesion that might start to bleed. Even in the latter instance anticoagulant therapy may be used with careful control and observation of the patient.

For anticoagulant control, Heparin and one of the oral coumarin drugs is usually used. A simple procedure is to give Heparin 50 to 75 mg. intravenously or intramuscularly every four to six hours for the first 24 to 72 hours or longer, until the oral anticoagulant has produced its effect.

At the same time that the initial dose of Heparin is given, one of the oral anticoagulants is given: for example, Dicumarol 300 mg. the first day then 200 or 100 mg. the second day and thereafter 50 to 100 mg. as a daily maintenance dose.

(I prefer to give the Dicumarol at the same time each day, for example at 10 a.m. In the hospital this facilitates better supervision and easier control. Also it reduces the possible effect of food on absorption.)

Safer Procedure

In the older age group or in a patient in whom one suspects that there might be a bleeding tendency, it may be a safer procedure to use 200 mg. Dicumarol the first day and then 100 mg. the second day and then adjust the dose thereafter according to the prothrombin level, meanwhile continuing the Heparin for the first few days until the prothrombin time is at the desired level.

There are other ways to carry out such therapy depending upon the choice of anticoagulant. These include Coumadin[®], Tromexan[®], Hedulin[®], (or Danilone[®]) and Cumopyran[®]. Cumopyran is similar to Dicumarol in its action. Tromexan has a shorter induction period, but control is difficult.

Hedulin (Danilone) has some side reactions. Coumadin is highly recommended, with its prompt induction period. It has a high predictability of response and is very sensitive to vitamin K or K_1 . It may be given intravenously, but it can also be used orally with Herapin parenterally. Usual dosage is 75 mg. orally the first day, then 6.25-12.5 mg. daily for maintenance.

Prothrombin Level

As to the prothrombin level, many physicians prefer to use the percentage of prothrombin level in order to control the patient. Others feel that it is much easier and simpler to use the number of seconds.

For example: with the control prothrombin level usually 12 to 16 seconds, many physicians prefer to obtain a therapeutic level in the patient of around 30 seconds. Thus the prothrombin reports should always be in both seconds and per cent and the control should always be noted.

Considerable Discussion

There is considerable discussion as to the dangers of anticoagulant therapy. Hemorrhage has been reported as high as 10 per cent with as many as one or two deaths per 100 cases. This seems rather high, but it should be pointed out that in such reports hemorrhage occurred also in five per cent of the control group.

It is true that there is the rare patient who is highly sensitive of anticoagulants. However, in most instances there is little difficulty. If bleeding does occur, vitamin K_1 —Mephyton® (Merck)—50-100 mg. intravenously reverses the bleeding usually in three to six hours.

For Heparin overdosage, two per cent Protamine sulfate intravenously milligram for milligram, with or without whole blood is indicated.

Prothrombin Test

As to the prothrombin test, I believe that its difficulty has been overemphasized long enough. With today's commercially prepared thromboplastins, the test is simpler and easier than a blood sugar.

I see no reason why the difficulty of this test should be continuously belabored. It is perhaps better to have the tests run by the same technician and also to run them in groups, always, of course, with a control. With a sincere technician, the difficulties of this test are eliminated.

Logical Usage

At first glance the most logical usage of anticoagulant therapy would be for the premonitory stage of coronary occlusion. However, the value of anticoagulant drugs in preventing an impending coronary occlusion has not been borne out by clinical studies. In reports, patients have been put on anticoagulants in ample time; and in spite of such therapy, with patients under good control, the process has not been stopped and the occlusion was not prevented. At present there is no known way to prevent such attacks.

In many instances it is felt that the occlusion occurs with the onset of pain, with the electrocardiographic changes and other confirmatory findings occurring later.

Actually a little thought as to the value of anticoagulants reveals that their value has not been demonstrated in preventing coronary occlusions. Thus anticoagulant therapy should be continued for at least three to six weeks or longer and then should be gradually tapered off.

Complications Reduced

As regards long term anticoagulant therapy, it has been shown to reduce subsequent myocardial infarctions and thromboembolic complications. In same instances patients have shown an increase in exercise tolerance. It is particularly indicated for the patients that have had more than one infarction and those who have thromboembolic tendencies. Continuous long term therapy is not difficult and after a patient is once regulated on an oral anticoagulant, prothrombin times may be done as little as once a month. The patient is usually maintained at about 23 to 30 seconds in such cases.

Manchester reports the value of continuous (one to 10 years) long term anticoagulant therapy. In his study of 204 patients in the anticoagulant group with 200 in the control group the characteristics of the groups studied were similar. 14.2 per cent of the anticoagulant group had subsequent myocardial infarctions as compared to 34 per cent in the control group. Also the mortality was 20.6 per cent as compared to 53 per cent in the control group. Thromboembolic complications occurred in 5.8 per cent in the anticoagulant treated group as compared to 17.5 per cent in the control group; whereas the mortality in the former was 14.2 per cent as compared to 45.7 per cent.

Interestingly, 51.3 per cent of the anticoagulant group showed improvement to exercise tolerance in walking and in performing the Master's two-step as compared to 27.5 per cent improvement in the control group.

The mortality was 5.4 per cent in the anticoagulant series as compared to 41.6 per cent in the control series.

Hemorrhagic complications occurred only in the anticoagulant group and this was 2.9 per cent with no fatality.

Summary

Anticoagulant therapy is recommended for most patients with coronary occlusion. The occasional "good risk" patient may be spared but it is felt that even in such cases anticoagulant therapy should be started and then tapered off as the patient becomes ambulatory.

The choice of anticoagulant is an individual one. Coumadin is highly recommended.

The test for prothrombin activity is not difficult and its difficulty has been overemphasized.

Anticoagulant therapy may be tried for the premonitory stage of coronary occlusion. Its usage and indication seems logical but so far such efforts have not prevented the occurrence of occlusions in such cases.

Long term anticoagulant therapy is not difficult and is recommended in patients who have had multiple attacks and particularly those who have had phlebothrombosis or embolic phenomena. Angina is reduced in some instances.

As the period of bed rest is shortened and early ambulation is encouraged, the need and indication for anticoagulants may diminish.

Discussion by Dr. Feener

The essayist has presented the views which are held throughout the United States today. Anticoagulant therapy is given to a majority of people who have suffered acute myocardial infarction. The contraindications to this therapy have been outlined adequately.

It must, however, be remembered that there are a distinct minority who are not as enthusiastic over anti-coagulant therapy as the majority. It is difficult to evaluate the efficacy of this particular type of therapy, and opinions will naturally vary.

Caution Urged

One should be cautious in talking and dealing with the lay public on this subject. There are many men in the rural areas who have treated myocardial infarction for many years successfully without anti-coagulant therapy, and will continue to do so.

These men are competent and have an absolute right to their opinion, and their opinion should be respected. Furthermore, if the internist or cardiologist treats coronary thrombosis with resulting myocardial infarction for a period time, he will at some time become very suspicious that his anticoagulant therapy has become detrimental rather than helpful to the patient.

Two-Edged Sword

I do not know of many cardiologists or internists who are honest with themselves who have not at least thought possibly they have seen this phenomenon. It behooves each one of us to remember that anti-coagulant therapy is a two-edged sword, and that it must not be considered lightly.

Last but not least, be cautious in your criticism of the practitioner who does not agree with you on the use of anti-coagulants, because there are times when anti-coagulant therapy does not arrest thrombo-ambolic phenomena whether associated with myocardial infarction or not. It must be remembered that the last word has not been said on anti-coagulant therapy, even with the addition of the new hypoprothrombinemic drugs.

Postgraduate Session Scheduled in El Paso

Dr. George E. Schreiner, professor of medicine at Georgetown University, Washington, D. C., will be the visiting speaker at a session of El Paso Branch of the Postgraduate School of Medicine of the University of Texas beginning at 8:30 p.m. Sunday, February 23, and running through the day in the Turner Home of El Paso County Medical Society, 1301 Montana Street.

Members of the American Academy of General Practice will receive seven hours credit for attending the session, Dr. Ralph H. Homan, dean of the El Paso Branch of the Postgraduate School, said.

Physicians from New Mexico, Arizona and Mexico as well as from Texas are invited to attend,

Dr. Homan pointed out.

Dr. Schreiner will speak on "Edema States" at 10:40 a.m. and on "A New Diuretic — Diuril," at 2:30 p.m.

All other speakers will be from El Paso. Their subjects and times follow: Dr. M. Nathan Kleban, "Diabetes and Acidosis," 8:30 a.m.; Dr. William I. Coldwell, "Cardiac Decompensation, 9:10 a.m.; Dr. John M. Verosky, "Diarrhea and Dehydration in Infants," 10:40 a.m.; Dr. H. W. Demarest, "Eclampsia and Toxemia of Pregnancy," 1 p.m.; Dr. Charles E. Webb, "Surgery," 1:40 p.m.; and Dr. W. P. Stratemeyer, "Care of Head Injuries," 3:10 p.m.

APHORISMS and MEMORABILIA

Truths and Concepts Concerning the Bronchopulmonary System

- 1. "Localized wheezes are never due to asthma."—R. Kern, *International Clinics*, 3: 183, 1936.
- **2.** "I—do not believe in disturbing this (traumatic) hemothorax unless is absolutely necessary."—RALPH BETTMAN, *loc. cit.*, page 667.
- **3.** "Morphine should be used in asthma only as a last resort. Its effect is that of a general depressant. It does not relieve bronchospasm, except in cardiac asthma."—F. RACKEMANN, Clinical Allergy, The MacMillan Company, New York, 1931, page 468.
- **4.** "There is only one dust that may be dangerous and that is the dust which contains silicon in some form. The organic dusts and those inorganic dusts which do not contain silicon are harmless."—
 JOHN HAWES, New England J. Med., 216: 163, 1937.

Lung Abscesses

- 5. "Most lung abscesses that we see die of one of three things:—1—a fatal hemoptysis, 2—extension of the infectious process to the other lung with rapidly spreading septic pneumonia, 3—penetration into the pleural cavity with empyema."
 —Tracy Mallory, New England J. Med., 205: 690, 1931.
- **6.** "Egophony is one of the most unreliable and useless signs."—RICHARD CABOT, New England J. Med., 199: 1219, 1928.
- **7.** "Miliary tubercles do not give physical signs, but they often do produce cyanosis."—RICHARD CABOT, New England J. Med., 198: 408, 1928.
- **8.** "The presence of active tuberculosis and asthma in the same patient is a rarity."—George Bray, *Recent Advances in Allergy*, 3rd. Ed., P. Blakiston's Son & Co., Philadelphia, 1937, page 129.
- **9.** (Cell count in chest fluids)—The count varies. "If you tap the upper portion you may get no cells, if the lower portion, many cells."—Tracy Mallory, Boston Med. & Surg. J., 195: 1032, 1926.

10. "The pain of pleurisy is capable of very extensive reference—it may be felt as high in the body as the cervical vertebrae and as low as Poupart's ligament." — LORD HORDER, *Medical Notes*, Oxford University Press, London, 1921, page 52.

Differential Diagnosis

- 11. "It should be emphasized again that the blood forming a hemothorax may come from the vessels of the chest wall as well as from any of the thoracic contents. It is important to make this differential diagnosis, if possible, from the standpoint of therapy. Hemorrhage from the thoracic contents rarely calls for operative treatment, whereas bleeding intercostal and internal mammary vessels must be caught at once."—Frank Boland, Proceedings of Interstate Post Grad. Med. Assembly of North America, Freeport Press, Freeport, Illinois, 1931, page 356.
- **12.** "The asthmatic should go supperless to bed."—J. A. Lindsay, *Med. Axioms, Aphorisms & Clin. Memor.*, H. K. Lewis & Co., London, 1923, page 5.
- 13. "Pneumonia in the aged may give the appearance of cerebral apoplexy—even with the aspect of true hemiplegia."—Charcot, Clin. Lectures on Senile & Chronic Diseases, New Syndenham Co., London, 1881, page 38.
- 14. "Calcification is usually looked upon as a measure of healing of tuberculous lesions. It should be remembered, however, that only the caseous parts become infiltrated with calcium salts; in other words, this is a reaction in necrotic tissue which harbors, or has harbored numerous bacilli, rather than an indication primarily of healing capacity. Therefore, I look on the extent of calcification as an index of the extent of pre-existing caseation, realizing that such foci, although appearing hard on the X-ray films, may still be rather cheesy or chalky and capable of liberating tubercle bacilli."

 —J. B. Amberson, Jr., New England J. Med., 219: 575, 1938.

ORTHOPAEDIC SURGERY NOTES

It is beginning to be felt that most scolioses with absence of vertebral deformity are actually due to sub-clinical cases of poliomyelitis. Therefore, after an upper respiratory infection with backache, patient should have the spine x-rayed for several months thereafter.

Children with foot deformities should have their pelvis x-rayed inasmuch as the hip joints may be deformed. This may not be obvious on clinical examination.

With experience and time the hip prosthesis situation is improving. On carefully selected cases the percentage of success is nearer 80 per cent than 50 per cent previously reported.

Newer Techniques

Arthrodesis of the hip joint on the other hand is a good procedure and newer techniques and technical advances are being frequently reported.

In slipped capital femoral epiphyses early diagnosis is very important in aiding the obtainment of a good result. The earlier the case can be "picked up" the better the result.

In fractures of the femoral neck and intertrochanteric region in children, the more conservative treatment is consistent with best results. In other words, closed reduction, blind pinning, casts and traction are in order. In contrast, older patients do better with the open reduction or closed reduction and nailing.

For application of long leg casts on the lower extremity in using a fracture table the pressure of the suspension back of the knee and about the ankle should be distributed over a wide area.

Large Felt Pad

In other words a large felt pad placed about the knee and the ankle, then application of muslin suspension is best. Sheet wadding can then be applied over the entire area and the cast applied leaving the front or anterior part of the knee open so that after the plaster sets, the muslin bandage can be completely slipped out.

This will eliminate any possibility of pressure in that region. The foot had best be treated separately, removing the foot traction and substituting manual traction. Remove the muslin bandage.

Then the application of the plaster while the foot is held manually and the knee is still suspended will eliminate the possibility of pressure sores about the ankle.

Several layers of sheet wadding under the cast certainly facilitates the removal of the cast

with the minimum danger of cutting or pinching the patient's underlying skin.

Eighty per cent of people with spondylolisthesis have a familial history. Fifty-two per cent of Eskimos have spondylolisthesis. The incidence of spondylolisthesis rises steadily from infancy to complete bone maturity. Embryologically, the bases of the two facets and the isthmus of the lumbar vertebrae all originate from one area and not separate growth centers.

A dark spot in an area of Paget's disease should lead one to suspect malignancy when roentgenograms are reviewed. Biopsy is then in order if possible. Mortality rate of malignancy in Paget's disease is 95 per cent.

In fractures of the articular surface of the ost calcis, if there is displacement present, open reduction will show usually far more displacement than was discernible by x-ray. After reduction by open procedure, pull-out pins can be used successfully to hold the fragments in position until union occurs.

Tibialis Posterior

The tibialis posterior is receiving more and more attention in the management of recurrent club foot.

In the management of scoliosis, early fusion and re-fusion in case pseudarthroses develop, is advocated.

Growth stimulation operations for leg inequality are becoming more popular and are felt at this time to give an increased amount of growth with each procedure.

In this day and age one sees particularly in some of the manufacturing fields apparently anything for a change. In other words, another model is put out merely for the sake of having a new model and not all of the so-called advances are definitely advantages over what was already being produced.

We must not let this influence us in the practice of medicine. We should continue to use procedures which have been tried and found to be best until the so-called new procedure definitely has demonstrated and definitely has been proved over a period of adequate time to be definitely superior. There, of course, are some situations in which the new procedure may very obviously outclass the standard or older one and definitely deserve use.

Next Month: A Crash Report on the latest research.

THE PRESIDENT'S COLUMN

Suggestions on Purposes and Goals of Southwestern Association Urged

By Louis G. Jekel, M.D., Phoenix

Last month this column carried a general outline of the purposes and goals of the Southwestern Medical Association. Over a period of years these functions have met the needs and desires of our members.

We want this happy state of affairs to continue. If the members in accordance with the times prefer changes in the procedures and programs it should be possible for them to express their views and effect all such desired changes. Fortunately, it is possible for them to do so.

The Association is operated in a democratic manner. At each annual session a business meeting is held. This meeting parallels a stockholders meeting. An executive committee (Board of Directors) and a slate of officers are elected to manage the Association for the ensuing year.

Controlled By Clique

If ever it is thought that the Association is controlled by a clique, it may be true. The reason is that only a quite small number of members take an active interest in the proceedings. All members are urged to participate but they do not do so.

Nevertheless it is possible for the members to express opinions, voice protests, and generally control the entire set-up if they so desire.

In addition to actual control of the organization members have another means at their disposal to get what they want. They may request special subjects for discussion at the annual meeting. The program committee is always anxious to produce a beneficial program that will be popular with the audience.

Requests Will Be Filled

Requests for subjects will be fulfilled whenever possible. It must, of course, be remembered that the program is prepared about a year in advance, so suggestions and requests should be submitted with that fact in mind.

It is my belief that the Southwestern Medical Association would benefit greatly from active participation by its members. Such activity would lead to renewed vitality in this venerable Association, and would redound to the benefit of each member.

Dr. C. R. Swackhammer

Physicians who attended the recent annual meeting of the Southwestern Medical Association in El Paso expressed deep regret at the death during 1957 of Dr. C. R. Swackhammer, 71, of Globe, Ariz.

Dr. Swackhammer, until stricken by a prolonged illness of five years, was a regular attendant at Southwestern Medical Association meetings and was vice-president of the Association for three years, 1935-37.

MONTHLY CLINICAL PATHOLOGICAL CONFERENCE EL PASO GENERAL HOSPITAL

November 21, 1957

Frederick P. Bornstein, M.D., Editor — Case Number 915 Presentation of case by Ward Evans, M.D.

History-Dr. Nathan Kleban:

Abdominal pain and shock brought a 48-yearold Latin-American mother of seven surviving of 16 children to the hospital on September 8, 1957. She died on September 11, 1957.

Twenty-four hours before admission, at 1:00 P.M., the patient experienced severe mid-upper abdominal pain which spread to the back. Three hours later, she began to vomit small amounts of yellow liquid material. Because of persistence of pain, recurrence of vomiting, and development of shock, the patient was sent to the hospital.

Except for the notation that the patient's general health and appetite had been poor, there was no oher significant contributory history recorded.

Physical Examination

T. 104.6 (R.) R. 32. On admission to the emergency room, there was no detectable peripheral pulse. Skin was cold. Heart sounds were distant. There was generous abdominal fat, slight rigidity, no bowel sounds, slight upper abdominal tenderness.

Hospital Course

Plasma and 1EVO-arterenol were started through a venous cut-down. Continuous gastric suction was begun. An indwelling catheter was inserted into the urinary bladder.

Except for a brief period, it was necessary to maintain the blood pressure with 1EVO-arterenol. Rectal temperatures ranged from 102 to 105. The patient was generally restless. She pulled out her gastric tube and I-V catheter or needle repeatedly.

Medications were Probanthine, Penicillin, Streptomycin, Tetracycline, Sparine, Aspirin, ACTH, Meperidine, Papaverine, Cedilanid, Phenobarbitol. Calcium gluconate and potassium chloride were added to I-V solutions. Arterenol-containing solutions infiltrated from cut-downs.

Urine out-put was 500 cc. on the first day, 2260 on the second, and 1600 on the third. On the third day there was a chill, dry cough, and cyanosis. Shortly before death rectal temperature rose to 107.

Respirations ceased before the heart stopped beating.

Laboratory Findings

Blood counts: September 8, 1957—Hb. 15.6 gms., Ht. 53%, WBC 13,900, Stab. 19, Segs. 63, Lymph, 18. September 9—Hb. 12.9 gms., Ht. 50%. Sept. 8—Hb. 12.4 gms., Ht. 48%. September 9—Hb. 12.0 gms. Ht. 45%, WBC 8,500, Stab. 2, Segs 78, Lymph. 20. September 10—Hb. 10 gms., Ht. 38%.

Serum amylase: September 8—560 units. September 10—285 units.

Urinalyses: September 8—S. G. 1,024-acid, WBC 40-50, occ. WBC clumps, albumin and sugar negative, 4-6 Squamous Ep. cells, bacteria, field packed. September 9—Bile-negative. September 11-S. G. 1.017, Albumin 2+, Sugar 1+, acid, few WBC, many RBC, granular casts, packed, amorphous urate crystals, much mucous, few vesicle Ep. cells.

Blood chemistry: Chlorides, September 10—87 mEq./1. CO₂—19.3 mEq./1. Vanden Bergh Direct—.6 mg.%, Indirect—1.4 mg.%, NPN—24 mg.%, Potassium — 4.2 mEq./1, Sodium 140 mEq./1.

Cephalin Flocculation: September 11 — 24 hours, 3+; 48 hours 4+.

Blood culture: Negative (at four weeks)

Serology: September 8—Negative.

X-rays: September 9—Upright abdomen, no free air observed under either hemi-diaphragmfindings consistent with ascites. September 9-Cholangiogram following intravenous administration of cholografin shows non-visualization. September 11—Chest (portable) unsatisfactory.

Electrocardiogram: September 8—Sinus tachycardia with rate of 150. Extensive myocardial change is probably secondary to shock.

Differential Diagnosis: Dr. Ward Evans

The history states that this 48-year-old white woman had a sudden onset of upper abdominal pain, radiating to the back, 24 hours before admission. It was accompanied by circulatory collapse.

Physical examination revealed a cold and clammy skin, and there were distant heart sounds. Examination of the abdomen revealed it to be rigid and tender in the upper half and silent to auscultation. The patient was obese.

Having proceeded this far with the examination, it is possible to draw a few conclusions.

First of all, the patient had a peritonitis of rather sudden onset, and there would be three main reasons to account for this:

- 1. A perforated ulcer,
- 2. an acute gall bladder attack, or
- 3. an acute pancreatitis.

Other conditions less likely would be a coronary thrombosis, a pneumonia simulating peritonitis, or. possibly, a high lying appendix. However, these latter diagnoses are not very probable with such a sudden onset as occurred here.

Impression Confirmed

Laboratory procedures confirmed the impression of peritonitis with a white count of 14,000 and 80% granulocytes. An x-ray of the abdomen did not reveal free air under the diaphragm. The urine was essentially normal except for a few white cells which are of no significance.

The serum amylase was elevated to 560.

The elevated serum amylase is the most significant finding in this case and permits you to crystallise your opinion: namely, that the patient most likely had an acute pancreatitis.

There is no ulcer. The history makes an acute gall bladder attack unlikely and an acute gall bladder attack would not account for an elevated serum amylase.

Therefore, we now have to differentiate between the various factors that might cause an elevated serum amylase.

Certainly by far the most common cause is an acute pancreatitis.

A posterior penetrating ulcer might also produce it, as would any acute inflammatory process in the upper abdomen which would involve the pancreas, directly or by extension.

A process by extension would most likely be a penetrating ulcer from the stomach or duodenum, but it does not seem likely to me in this case.

So, I think the doctors handling the case were

justified if they considered the case an acute pancreatitis and treated the patient accordingly.

Pancreatitis Regimen

The treatment was that of a pancreatitis regimen, plus maintenance of liquid and electrolytes plus splachnic block.

Nevertheless, the patient died three days after admission which, with this particular disease, I consider the common outcome. The diagnosis, then, is acute hemorrhagic pancreatitis.

Dr. Jack C. Postlewaite

The brevity of the case probably makes it more difficult, because there are many things we would like to know in her past history that might have contributed to a diagnosis.

For example, perhaps she had gall bladder disease.

Non-visualization of a gall bladder is certainly not impossible with an acutely ill patient with electrolyte and fluid shifts such as she had with her acute course of three days.

I am impressed that they did do a gall bladder series, inasmuch as many of her liver function tests were abnormal and the intravenous study is a rather difficult study at best.

The fact that they did it, though, at least made the house staff and the attending physicians look in the direction of liver, gall bladder and pancreas.

I don't doubt the diagnosis of pancreatitis, probably acute, edematous to begin with, perhaps of a viral or toxic origin and subsequently hemorrhagic with fatal termination.

One gets the impression that other problems exist.

For example, albuminuria and glycosuria occurred which is not unlikely in a progressive pancreatitis.

Perhaps surgical intervention was indicated, although it adds to the morbidity and mortality of these cases and most surgeons prefer not to go in.

However, she had ascites by x-ray and one wonders why a needle couldn't have been introduced and the ascitic fluid analysed for other elements than fat necrosis and pancreatic secretions.

Then you get the impression that another event occurred, something pulmonary.

Was an embolus possible?

Now the pancreatic lesions, malignant lesions, for example, are associated with the thrombo-embolic phenomena.

Unexplained peripheral thrombosis should always be investigated for the possibility of a pan-

creatic lesion, usually malignant, rather than pancreatitis

Myocarditis

The only other comment: one is interested in the myocarditis diagnosed apparently by her vasomotor collapse and diagnosed by her electrocardiogram.

Is this electrolyte or is this organic lesion of the myocardium?

Pancreatitis is a disease with a liberation of high amounts of amylase, which produces hemorrhagic phenomena.

It is not limited just to the viscera where there is fat necrosis.

It is circulated in the fluids and often gives hemorrhagic myocarditis and hemorrhagic encephalitis with petechiae, round cell infiltration, perivascular cuffing, and so forth.

These people have myocardial findings as well as encephalitis type terminal symptoms.

Dr. Manley R. Cohen

The only comment on the chest film, which is a portable, is that the film was unsatisfactory. Even though it is unsatisfactory, there are a few changes in here which point to some type of pulmonary pathology.

Regardless of the diagnosis, certainly there is attelectasis at the right base, and some fluid on the left.

With a patient suspected of acute pancreatitis, this is not at all surprising, as pointed out by Dr. Postlewaite.

Certainly from the x-ray point of view, pulmonary emboli are almost a must in considering a secondary diagnosis.

Dr. Frederick P. Bornstein

Dr. Postlewaite mentioned congestive heart failure. Does congestive heart failure develop in three days? Is that possible?

I always thought that congestive heart failure develops on the basis of a more or less longstanding disease.

When a heart gets functionally impaired very quickly, do you really develop congestive heart failure in the proper sense of the term in three days?

Dr. Cohen

Yes.

Dr. Saul B. Appel

That's an interesting question, but congestive heart failure certainly can develop in a matter of hours to a day. Of course, microscopically, you may not see the same picture, with the pigmentladen macrophages in the lungs and the congestive changes in the liver, but the clinical picture of congestive heart failure can develop very quickly.

What I was thinking of, is that while we are all looking at the upper abdomen in this patient, actually, the picture is non-specific, and I think it is possible to conceive of almost anything rupturing within this abdomen and, in the supine position, the fluid could travel upwards under the diaphragm and also produce severe pain in the back which might not have been localized.

So acute pancreatitis seems a very likely possibility, but as long as this is a CPC and nobody else has mentioned it, I think we should mention rupture of an ovarian cyst, tumor, or possibly, even rupture of an abdominal aneurysm. However, I doubt very much that we would have this picture, but still, I think that anything that ruptured within the peritoneum, or even outside the peritoneum, could produce a picture somewhat like this.

Amylase Figures

The two amylase figures do not impress me very greatly, even though they were done at this hospital.

I think Dr. Dow and I remember a patient with an amylase of 3200, just a few weeks ago at another hospital, and then the next day it was down to 80, and he did not have pancreatitis.

But it was 3200, and the technicians swore that this was, very obviously, a high amylase, so I wouldn't stick my neck out and say this means pancreatitis. As Dr. Postlewaite says, there are other things.

Dr. Evans mentioned a penetrating ulcer, or perhaps anything that is sitting above the pancreas could produce, by irritation, a serum amylase this high,

Dr. Pablo Ayub

I think there is probably no doubt that this patient had peritonitis, and whether the pancreatitis could be the primary lesion or not is questionable.

This could begin, as Dr. Appel said, some other place in the abdomen, even with an appendix, or any other type of bacterial infection.

If the appendix were to burst, an abscess with secondary thrombophlebitis, a pylephlebitis could then give you a secondary pancreatitis from just plain thrombophlebitis.

This portal phlebitis could conceivably cause clots which could detach, and some small clots could find themselves in the lungs.

Dr. Bornstein

If you once have a septic abscess in an organ,

you can develop loose thrombi in adjacent vessels which produce emboli.

If your portal system gets thrombotic, you can develop abscesses in the liver.

You cannot have direct pulmonary emboli from a thrombus in the portal vein.

There has to be an additional septic focus inside the liver to produce pulmonary emboli.

Dr. E. S. Crossett

One other guess hasn't been specifically made. Dr. Ayub pointed out that an abscess in any part of the abdomen might cause a picture like this.

There is a little note there that the woman had been ill, and had a poor appetite for some time.

There is evidence of liver damage, and the fluid in her right base could be on the basis of infection under the diaphragm — a liver abscess or subdiaphragmatic abscess.

Clinical Diagnosis: Acute hemorrhagic pancreatitis.

Dr. Ward Evans Diagnosis: Acute hemorrhagic pancreatitis.

Pathological Diagnosis: 1. Acute hemorrhagic pancreatitis, 2. Abscess of minor omental bursa with perforation and retroperitoneal abscess. 3. Pleural empyema on the left.

Pathological Discussion—Dr. F. P. Bornsteni: Well, the autopsy findings more or less cover the entire body in this particular case. The peritoneum was dull and hyperemic and there were all the signs of an acute perotinitis. The basic lesion was that of an acute hemorrhagic pancreatitis.

Everybody here made this diagnosis. Due to the necrosis of this pancreas, a large abscess had formed in the minor omental bursa.

Abscess Perforated

This abscess had perforated into the retroperitoneal space and had produced a large abscess on the left side between the spleen and the diaphragm.

Directly above it, on the left side, was a large empyema of the left pleural cavity with collapse of the left lung.

So we have lesions extending into all directions, into the peritoneum, into the retro-peritoneal space, into the thorax.

It all started out with an acute hemorrhagic pancreatitis.

Gall Stones

The patient did have gall stones.

I would have been delighted to find a myocarditis, but did not.

I think in this particular case the general shock, peritonitis and the electrolyte disturbance are sufficient to explain the cardiac symptoms.

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Coming Meetings

Texas District One Medical Association, annual meeting, Pecos, Texas, Feb. 11, 1958.

Postgraduate Conference on Edema, University of Colorado Medical Center, Denver, Mar. 13-15, 1958.

Postgraduate Session, El Paso Branch, Postgraduate School of Medicine, University of Texas, El Paso County Medical Society Turner Home, 1301 Montana St., El Paso, Feb. 23, 1958.

Temple Division, University of Texas Post-graduate School of Medicine, sixth medical and surgical conference, Temple, Texas, Mar. 3-5, 1958.

Texas State Surgical Society, El Paso, Texas, April 5-8, 1958.

Fifth International Congress of Internal Medicine, Sheraton Hotel, Philadelphia, April 24-26, 1958.

American Fracture Association, annual meeting, Oklahoma City, Oct. 1-3, 1958.

Southwestern Medical Association, annual meeting, Tucson, Oct. 23-25, 1958.

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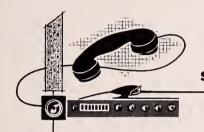
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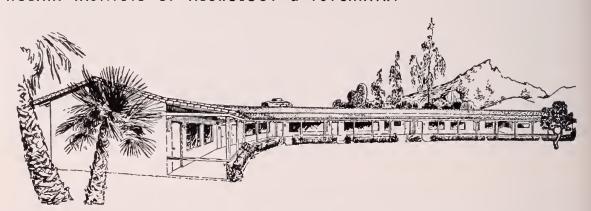
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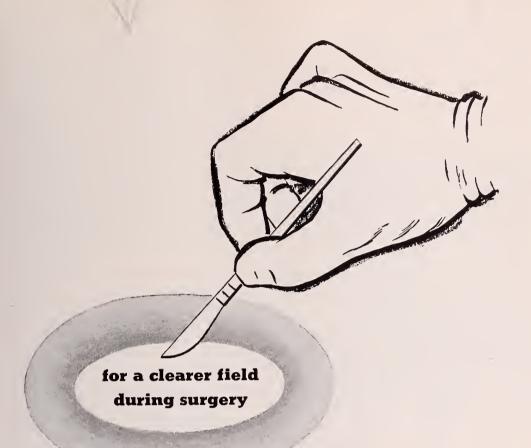
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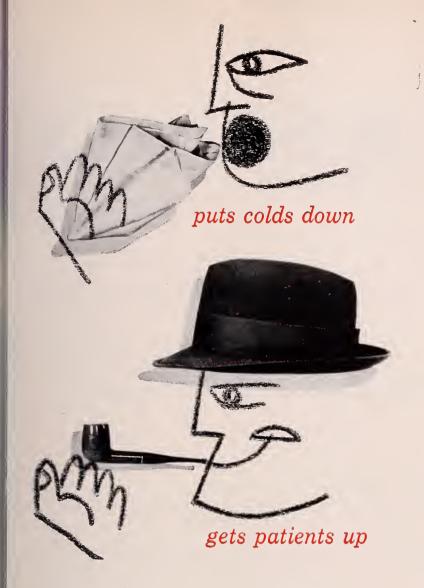
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^{*}T. R. Robie, paper read at First Marsilid Symposium, New York City, November 29, 1957

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A. Marsilid is a relatively slow-acting drug; even in mild depression results may not be evident for a week or two. In chronically depressed or regressed psychotics, results may be apparent only after a month or more.

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Q. What precautions should be taken with Marsilid?

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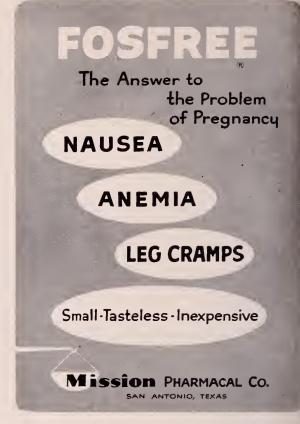
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^{*}Rest, Edward J., and Todd, Wilbert R., Textbook of Biochemistry, 2nd Ed. (New York, Macmillan, 1955), p. 522; p. 1074-5.





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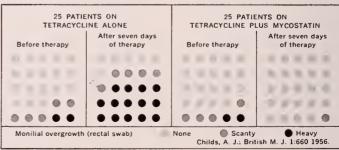
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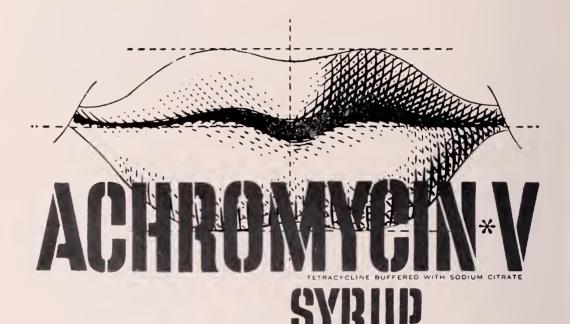
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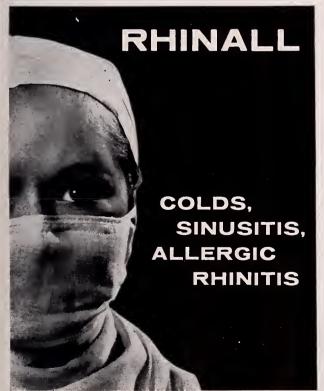
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Zinc (as ZnCl ₂)	2 mg.
Manganese (as MnCl ₂ •4H ₂ O)	2 mg.
Iron (as ferrous gluconate)	20 mg.
Alcohol	18%

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- 1. Gellis, S., S., McGuinnes, A. C., and Peters, M.: Am. J.M. Sc. 210:661,1956.
- 2. Bowers, D.: West. J. Surg. 61:72, 1953.
- 3. Editorial: New England J. Med. 256:1066, 1957.

HYPAROTIN provides effective prophylaxis against mumps and its complications.

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CURRENT THERAPY

Acute Myocardial Infarction

(continued)

Bed Rest Vs. "Arm-Chair Treatment"

By Jack A. Bernard, M. D., El Paso

With a Discussion by Dr. John E. Morrison, El Paso

Since the 1920's the classical treatment for myocardial infarction has been absolute bed rest for three weeks—six weeks—or even more. About 1937 Dr. Samuel Levine noted improvement followed by prompt recovery in a coronary patient who was moribund with severe congestive heart failure and pulmonary edema, when this patient was placed in a chair after all other measures had failed, in the hope to divert fluid from the lungs and the lower extremities. Since that time he and his colleagues have demonstrated the beneficial effects of this method of treatment, referring to it as the "arm-chair treatment."

Statistics Favor Arm-Chair Treatment

It has been pointed out that long bed rest is actually harmful. Wood reported "arm-chair therapy" reduced the mortality by 50 per cent. Helander also showed that the death rate was doubled by the conventional method of treatment. In Levine's cases, the incidence of complications was decidedly less among the chair-treated patients. In view of these statistics it is surprising that this type of treatment is not more generally accepted, since it has been now 20 years since it was first described and since subsequent reports have confirmed its value.

Purpose of Rest

The purpose of bed rest is to rest the heart but it has been shown that cardiac work is actually increased in the recumbency position, due to an increase in circulating blood volume due to the maximal venous return from the periphery. The recumbent position also encourages the pooling of fluid in the pulmonary circuit. Wood found cardiac work less in the sitting position. Catherization studies by Coe showed the work of the heart 23 percent less when the person is in a chair than when the person is in bed. It seems evident, therefore, that the work of the heart is decreased by chair treatment.

There are many clinical observations also that cause one to question the need for strict bed rest. Many patients have been observed to have had "silent coronaries" and have done quite well without bed rest. Many patients have been treated for acute coronary occlusion that have done quite well in spite of activity.

Harmful Effects of Bed Rest

Finally, both Masters and Levine point out that "strict bed rest produces anxiety and depression, loss of muscular and vascular tone, constipation and distention and predisposes to venous thrombosis." Thus Master writes "chair treatment reduces all these ill effects and lessens the need for prolonged anticoagulant therapy." Anxiety is harmful for another reason, in that studies have shown that emotion causes a marked increase in cardiac output.

In view of the above it is evident that patients are kept in bed too long and the period of bed rest should be shortened. The severely ill patient

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in shock should be kept in bed until the usual therapeutic measures have brought this under control. The patient with congestive failure is certainly benefited by approximating the sitting position or by placing in the arm-chair as recommended. Many patients with angina are benefited by the upright position.

Levine advocates the arm-chair treatment for all cases of acute coronary thrombosis from the onset of the attack and particularly for patients with congestive failure. In most cases a patient may be out of bed in the first two days. He remains in the chair as long as he is comfortable. He is helped by two people, one on each side, being careful not to put any pressure on the back of the patient's knees or calves in order not to interfere with the circulation of the lower extremities. The patient is usually allowed to feed himself, comb his hair, but he is not allowed to shave himself.

Contraindications to Treatment

Contraindications to the arm-chair treatment include severe shock, extreme debility and weakness, or a cerebrovascular accident. It is felt by the chair advocates that high fever, severe pain, a need for oxygen, cardiac irregularities do not prohibit the use of the chair.

They *emphasize* that the arm-chair treatment is *not* meant to allow the patient more physical activity. The patient is *not* allowed to walk in less than three weeks following the onset of his attack. Levine points out from pathological studies that rest should be advised for four to six weeks, at the end of which time final healing and scar formation are thought to be complete.

Caution

It is pointed out that one of the hazards of "chair treatment" is that it may encourage an easy going attitude toward the gravity of the process being treated. It is emphasized that the patient should be kept as quiet in the chair as he would in bed. This is repeatedly emphasized: that rest in the chair should be carried out with the same strict adherence as rest in the bed.

Harmful Effects

There have been no harmful effects noted from the chair treatment. Observations made on patients with acute myocardial infarction when the patients were got out of bed into a comfortable chair showed that there was no change in pulse and respiration. A very slight dimininution in blood pressure occurred, suggesting cardiac work load may have been decreased by chair treatment. Follow-up studies have shown no complications attributable to this type of treatment. There is no evidence that mortality is increased. Follow-up roentgenologic studies have shown no instance of ventricular aneurysm. No deleterious long range effects have been noted.

Summary

"Arm-chair therapy" seems superior to the traditional strict bed rest regimen. Physiologic as well as clinical studies support the view that cardiac work is increased by recumbency. Mortality is not increased by the chair treatment. No complications attributable to this treatment have been noted. Contraindications include shock, weakness and cerebrovascular accidents. It is emphasized repeatedly that the treatment does not allow the patient more physical activity.

Discussion by Dr. Morrison

Dr. Bernard has given us an excellent review of the subject of armchair treatment of myocardial infarction. Probably in the near future this type of management of these pateients will become as routine as bed rest has been in the past, at least with patients under close supervision. Certainly it offers great relief to some patients. The dramatic improvement in acute pulmonary edema achieved by getting the patient out of bed and into a chair is familiar to every one. There are also many patients with coronary insufficiency, without pulmonary edema, who experience their greatest difficulty in the recumbent position.

There are certain drawbacks in trying to apply this type of management to all cases of myocardial infarction. Most patients with mild or moderately severe attacks are cared for without the aid of special nurses. In many areas there is a dire shortage of floor nurses and trained attendants. The effort of geting in and out of a high bed without skilled attendants (Levine advises one on either side of patient), together with the possibility of a patient being left in a chair for some time after becoming tired, would negate some of the advantages of this type of treatment. It is a little frightening to me to think of leaving a patient with recent myocardial infarction with elevated temperature, a rising sedimentation rate and a cardiogram that has not yet stabilized, sitting in a chair for variable and unpredictable periods of

Dr. Bernard has presented the case for armchair treatment of myocardial infarction well indeed. I would like to congratulate him on his concise and highly instructive presentation of this very provocative subject.

ORTHOPAEDIC SURGERY NOTES

Dr. Louis W. Breck of El Paso has submitted his impression of the Third Annual Automotive Crash and Field Demonstration Conference which was held at the Holloman Air Force Base, New Mexico, Nov. 12-13, 1957 under the direction of Col. John Paul Stapp, MC.

Dr. Breck reported that Col. Stapp was an excellent master of ceremonies and that his staff put on an outstanding program. Commanding General L. I. Davis gave an address of welcome and showed a movie on guided missiles which gave a good idea of the set up and operations at the base. There is a ground test track there 35,000 feet long and absolutely straight and flat. It is the biggest thing of this kind anywhere in the world.

Much Controversy

On the question of seat belts, since there is so much controversy, your reporter would like to emphasize the fact that seat belts are important. A young medical officer in the Air Force demonstrated that he could withstand 26 G. with a lap belt only and he was obviously not hurt at all. With the same track and the same force (26 G.) a dummy was demonstrated. The dummy was thrown about 15 feet. This force would have completely demolished a human. The dummy did not have a seat belt. In other words all of us should use our seat belts and should have them available. It is too late to put the seat belt on by the time the accident occurs.

Colonel Stapp had three types of deceleration equipment. It was noted that 26 to 30 G. is about the most that human experiments will tolerate with only a seat belt in testing demonstrations of deceleration. One of the types of deceleration equipment is a bopper test track which is spring operated and is decelerated with very carefully made lead brakes on brake shoes. Another is a simple swing seat which is self descriptive.

The third and best one is called the Daisy track which is to be actuated eventually with compressed air. Colonel Stapp is now using catapult explosive charges. This is very carefully made and controllable track. A bear was decelerated at 25 G. The bear was not hurt at all. Therefore it is obvious that a lap belt or seat belt is most helpful in decelerations. Apparently the human pelvis offers the best protection for seat belt retentions of any animal known, and in fact we seem to be especially prepared to use seat belts effectively.

In connection with Biostatistics of accidents in the Cornell University Accident Survey, Mr. Tracey gave an excellent presentation. He is in charge of field work and of encouraging police officers particularly and doctors and others secondarily into doing the best they can on reporting accidents accurately.

The survey now has quite a large series, but wants to run the series up to 20,000 or 25,000 before making a more detailed report. The survey has now expanded the project with considerably more financial aid and expects to get 10,000 good reports a year. These extensive statistics are needed because from 1956 on there are many more accidents reported in which the victims have seat belts. However, the survey is interested in all types of statistics on accidents. It is now working in 75 areas in 16 states including Texas.

Arizona was an early state to be included, and probably West Texas will not be included because it so resembles Arizona where there are extensive statistics. Mr. Tracey said that everyone was quite cooperative in gathering these statistics. Over 90 per cent of the forms on accidents get completed satisfactorily.

Main Approach

The main statistical approach is to use random sampling from all over the country. An interesting thing is that early cars and later cars up to 1956 showed approximately the same statistics in regard to incidence of injuries and severity of injuries.

One thing stands out above everything else and that is that ejection is the worst thing that can possibly happen and the worst thing statistically as a cause of serious injury and death. One other serious thing that can happen is to be hit directly from the side with a vehicle going at high speed and with the impact occurring right where the passenger is sitting.

There is very little that can be done about this particular type of situation except to try and not get hit directly on the side. As the speed goes up in all accidents, there is a marked increase in the injury rate. Sixty miles an hour seems to be a good ranging point.

In accidents below 60 and above 60, the rate is three times as great above 60, both as to injury rate and mortality. However, the survey stresses that speed, although it is very important, is not

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necessarily the major factor in regard to decreasing automobile injuries and deaths. As far as the 60 mile an hour speed is concerned, a practical angle of this is that if an impending traffic situation develops and you are the driver, get down well below 60 as soon as possible before getting involved in any type of collision.

As an aside in this discussion, it was apparent to everyone in the conference and was brought out repeatedly by different discussers and assayists that there is a certain group of accidents called non-survivable and that analysis and attempting to improve the statistics in these is hardly worthwhile on an economic or practical basis.

Non-Survivable Group

There is not going to be much time or energy spent on the non-survivable group. Examples of non-survivable accidents are roll over at 90 miles an hour or striking a total obstruction such as a tunnel side at 30 miles an hour. Both of these develop 50 G, or more in the occupant, and he would be extremely lucky to survive either of them. Now in regard to seat belts and estimates as to their effectiveness by the Cornell people: A seat belt may be anywhere from 30 per cent to 60 per cent effective.

They believe they are probably 60 per cent effective at reducing mortality only. They are willing to state positively that they are at least 30 per cent effective and probably 45 is a good average as to their effectiveness on conservative estimates.

In their analysis of 700 seat belt cases, there has not been a single death in any case except in the non-survivable group where the patient couldn't possibly have survived anyway.

In other words, their small series of 700 seat belt cases, showed total effectiveness of seat belts so far. There were no belt failures in these 700 cases and there was not a single death caused by a belt. It is quite evident that there may be a freak case of someone being killed by a belt but these cases must be extremely rare and certainly under one per cent of seat belt accidents.

In the Cornell report there were no more injuries with high powered cars than with low powered cars. It is just the same, in old cars and in 57's. There is no correlation between horse power and speed in their statistics. Heavy and light American cars are equally dangerous from the statistical standpoint.

It is obvious that in a collision between a very heavy and a very light car, one would be better off in the heavy car but statistically there has been no difference in the number or severity of injuries sustained in heavy or light American cars. They do not have data on foreign cars because they have had so few accidents in which they were involved that the data are insignificant.

Dr. James J. Ryan, professor of engineering at the University of Minnesota, has been working on safety cars and safety bumpers for a long time. He has a safety bumper that is highly efficient. It is essentially a shock absorber type of device with big shock absorbers in the bumper supports on each side. There are several versions of this. A heavy one for trucks and lighter one for cars. Dr. Ryan also has a steering wheel that bends over and gets out of the way. This is pulled over by a cable so the occupant can't strike the wheel.

A seat belt was demonstrated and an ordinary nylon belt was tested up to 6,600 pounds without breaking anywhere. The fastening of the nylon to the buckle is important. You should use good, big washers to bolt the belts to the automobile floor. A flat statement was made that a 6,000 pound belt is totally effective in an automobile wreck unless you hit your head or are in a non-survivable accident.

In moving pictures shown, 15 G. causes the subject to go away from the seat and into the seat belt. Subjects who have been subjected to this usually have muscle pain in their upper abdomens for four to 24 days but nothing serious. Twenty seven G. for 1/20th of a second gives spine pain in the upper back and all of the subjects who were subjected to 27 G. felt that this was absolutely all they could take.

Six G, will expel the occupant from the car very easily. Twenty seven G, gives a 4,700 pound pull on the seat belt.

If you are going 30 miles an hour and go into a total obstruction with instantaneous deceleration, you develop 40 G. and are right at the edge of a non-survivable accident. With a seat belt you would probably survive but you couldn't count on it as 40 G, is at the reasonable limit of survival.

Recommendations

The S.A.E. Seat Belt Committee discussion revealed that 3,000 pound standard for seat belt with the top of about 4,000 pounds was all that would be recommended because of the relatively small increase in safety in the higher bracket.

Dr. Duncan McKeever brought out a new theory about whiplash injury in that it actually is not a whiplash but a forward thrust of the body and cervical vertebrae against the skull. There are some interesting forces to figure from a standpoint of physics which brings us around to this writer's opinion, and that is that the diagnosis of "whiplash injury" is not accurate and actually we should designate this as "sprains of the cervical spine" or "strain of the neck ligaments and muscles" since whiplash is merely the mode of acquiring these.

A tightly fastened seat belt and a straight up sitting position are the best preventatives of severe injury from rear end collisions in the automobile.

THE PRESIDENT'S COLUMN

The Author Outlines His Position

By Louis G. Jekel, M.D., Phoenix

In previous months we have discussed the Southwestern Medical Association, dwelling on its organizational structure, and its purposes and

Dr. Louis G. Jekel

objectives. It was brought out that there exists a set of officers. One of these officers is the President.

I wish at this time and during the next several months to express my views as to the duties, obligations, rights, and privileges of the President, and to outline a program which, it is hoped, could serve as a model for future years.

It has been customary for the President to write each month for Southwestern Medicine a column known as the President's Page. Many medical journals have such a regular feature. The President is in a good position regarding this article, for he may write anything on any subject and almost at any length. He has a sounding board for his views. He need only stay within the bounds of decency and propriety. And, there being no rebuttal, no one can argue with him.

The reader is in a somewhat less favorable position. Here can be published the good or bad

opinions of one man. The material may be well written or poorly written. It may be important or unimportant. It may be informative or instructive, or not. It may be completely worthless, and often is. Your only defense, dear reader—and this may be well-nigh life-saving—is that you do not have to read it.

Friendly Critic

A well-meaning, friendly critic has pointed out that the President's Column would better be left unwritten unless the President really has something to say. I agree absolutely, although by doing so I may amputate the greater part of my literary career. In self-defense, then, I must include this column and your courtesy in reading it among the privileges accorded me as holder of this office.

In return for your courtesy I shall endeavor to produce something worthwhile in the sense that you shall not, having read it, feel that you have wasted your time.

My material will more than likely be along the lines of the history and organization of the Southwestern Medical Association, the History of Medicine, especially as it pertains to the Southwestern United States, the opportunities presented in the region for clinical research and medical writing, some phases of the practice of medicine, and perhaps some amusing anecdotes.

I hope and pray that whatever I write or say may work for the benefit of our organization and to the satisfaction of its members.

Social Security Footnotes

To support socialistic practices in regard to retirement funds requires that, for the sake of consistency, socialized medicine also be supported. If one believes that the federal government should tax everyone to provide an income for each upon retirement or disability, one must also believe that the same government should, with equal propriety, tax everyone to provide medical care for all!

APHORISMS and MEMORABILIA

Truths and Concepts Concerning the Bronchopulmonary System

(continued)

- 15. "In every case of tuberculous pleurisy with effusion look for future seeding, for many such cases represent hematogenous disseminations."—
 J. B. Amberson, Jr., loc. cit.
- **16.** "One should palpate tuberculous cervical glands with great care to avoid reaction."—J. B. Amberson, Jr., loc. cit.
- 17. "Look for a cavity somewhere in the lung when you find a positive sputum."—J. B. Amberson, Jr., loc. cit.
- 18. "There is a real connection between the mediastinal lymphatics and the supraclavicular nodes, but none between the mediastinal and cervical nodes. This explains the occasional occurrence of a Virchow's node in carcinoma of the lung."—
 J. B. Amberson, Jr., loc. cit.
- 19. "Every case of lung abscess should be bronchoscoped."—J. B. Amberson, Jr., loc. cit.
- **20.** "It is not uncommon for a pleurisy with effusion to start exactly like a pneumonia with a chil, fever (up to 105) and stitch in the side."—
 J. B. Amberson, Jr., loc. cit.

Crepitations

- **21.** "Pleural crepitations heard above the level of a resolving pleural effusion may at times deceive you into thinking you have parenchymal involvement."—I. B. Amberson, Jr., loc. cit.
- **22.** "Recurrent unilateral or bilateral spontaneous pneumothorax is very commonly due to rupture of superficial emphysematous blebs."—J. B. Amberson, Jr., *loc. cit.*
- **23.** "If you get musty or odorous pus and a culture is negative, don't be deceived. Do an anerobic culture."—J. B. Amberson, Jr., loc. cit.
- **24.** "If you find lung abscess in a man over 50, think of carcinoma of the bronchus as the cause."

 —J. B. Amberson, Jr., *loc. cit.*
- **25.** "Bronchiectesis is almost never diagnosed by bronchoscopy."—J. B. Amberson, Jr., *loc. cit.*
- **26.** "Congenital cystic disease of the lungs is more mystic than cystic."—(Quoted by J. B. Amberson, Jr., after Grethmann), loc. cit.
- **27.** "The more fibrotic and emphysematous a lung, the more atypical will the pneumonia be."—
 J. B. Amberson, Jr., loc. cit.

- **28.** "Every chest infection damages the lungs."

 —J. B. Amberson, Jr., loc. cit.
- **29.** "Before operating on anyone with much laryngeal involvement, take a chest plate to be sure there is no aspiration pneumonia."—J. A. Amberson, Jr., *loc. cit.*
- **30.** "Fungus disease of the lung usually turns out to be tuberculosis, and frequently atypical hematogenous tuberculosis, for fungus disease is uncommon."—J. B. Amberson, Jr., loc. cit.
- **31.** "In any pyrexia of long duration, look closely at the mediastinum for tuberculous glands."

 —J. B. Amberson, Jr., loc. cit.
- **32.** "When acute disease of the lungs occurs in persons with rickety deformity, the violence of the symptoms is often quite disproportionate to the extent and severity of the pulmonary disease, and may thereby suggest unnecessarily active treatment."—Thomas Addison's Works, *New Syndenham Soc.*, London, 1868 vol. 36, page 65.
- **33.** "We may be called to see a case of pleurisy before a single physical sign has developed. In such a case it may be doubtful whether the pain arises from pleurisy, rheumatism, neuralgia, or the approach of shingles."—Thomas Addison's Works, loc. cit.
- **34.** "Sound is transmitted through bodies by a successive motion of its molecules, the whole mass not necessarily undergoing any change of place, whilst the movement appreciable by the hand is the change of place which an entire body undergoes."—Thomas Addison's Works, *loc cit*.
- **35.** "I shall content myself with offering a caution not to mistake the crepitations so often attendant upon recent pleuritic effusion for the crepitatory and mucous rales of bronchopneumonia."—Thomas Addison's Works, *loc. cit.*
- **36.** "The reason that most metastatic pulmonary malignancies are shown as rounded, sharply defined opaque shadows in the roentgenogram is due to the large number of end arteries in the lungs and to the yielding nature of lung parenchyma. A malignant cell lodges in an end artery and multiplies; as the resistance in all directions is the same it grows as a round, discrete tumour."—Radiologic Maxims, Mississippi Valley Med. Jour., 61: 114, 1939.

ORIGINAL ARTICLES

The Care of Multiple Injuries*

By Preston A. Wade, M.D., New York

The problem of the seriously injured patient has never assumed as great an importance as it has in the present generation. In this modern day of rapid transportation, as a result of the combination of excellent highways and high powered motor cars, there is an increasing number of civilian casualties, so that even the smallest hospitals are continually faced with the problem of the treatment of patients with multiple injuries.

On an ordinary holiday weekend three or four hundred fatalities may be expected and, in addition, thousands of serious casualties which cause long, painful and costly disabilities. It is well known that the number of civilian casualties arising from motor car injuries in one year is considerably greater than the combined number of casualties suffered during all the wars in which the United States has been involved.

On the other hand, the ominous threat of an atomic war makes us realize that in another conflict most of the casualties will be in our cities, will be civilian casualties, and will need to be taken care of by our present medical facilities.

Even though the threat of war may be more remote than it was a few years ago when civilian defense plans were first initiated, it is essential that we keep in mind these facts and be prepared for catastrophes in every community.

Although most hospitals have a plan on paper for disasters, when faced with an unexpected catastrophe they may find that the plans fall short, and it is from the actual experience of hospitals in catastrophes that we may learn important lessons.

It is interesting to read the report of the three tornados which occurred several years ago—one in Waco, Texas; one in Worcester, Mass.; and one in Flint, Michigan. These were very similar in many respects, in that each had about the same number of fatalities and each about the same number of casualties, and in every case the difficulties encountered seemed to parallel one another. In Waco there were 113 deaths and in Worcester 114 deaths.

In one there were 1500 casualties and in another 950 casualties. In each instance the failure of proper organization caused some of the most serious difficulties. The necessity of preparedness and organization are the two factors stressed in each of the reports to control the fear, panic, confusion, and chaos which resulted in each instance. The question of proper communication and proper transportation seemed to be stumbling blocks in all of these disasters.

In the Worcester report, particularly, the writer was impressed by the difficulty in receiving patients properly and in sorting the injured in hospitals, so that the seriously injured received prompt and efficient care.

In all of these cases the medical services seemed to be adequate and the supplies were adequate, but there was a question of faster communication to the personnel needed and transportation to get them to the hospital. In all of these the emphasis was on a well-trained and well-organized small group, rather than a large group of poorly organized and poorly trained personnel.

Another lesson learned in the disasters mentioned above was the high infection rate of the sutured wounds. This is a lesson which must be emphasized to the young surgeon, who is accustomed to laborious suturing of open wounds in civilian practice.

First Aid

In many instances of automobile crash injuries, as well as what may be expected in an atomic war, most of the cases will receive first aid from a layman and untrained personnel. The Red Cross is doing a very good job in attempting to train as many first aid instructors as possible, and it is certainly the duty of the medical profession to educate as many as possible of the lay public in the fundamentals of first aid.

It also becomes necessary now for the medical profession as a whole to take an interest in the problem and see to it that all physicians, even though they may not be interested primarily in trauma, have some basic knowledge of first aid in

^{*}Presented at annual meeting of Texas Orthopaedic Association, Dallas, April 29, 1957.

order to help train personnel when the occasion arises.

There are several general principles in first aid which I should like to mention. The first is the priority of conditions that need first aid treatment.

There are three conditions in which first aid therapy may be of considerable help in saving lives.

The first is the treatment of obstruction to respiration—the maintenance of a free air way; the second, the stoppage of hemorrhage; and the third, the treatment of shock.

Certainly, even the lay person realizes that without the free air exchange the patient cannot survive, and when possible, mucous, blood, and vomitus should be removed from the mouth and pharynx in order to prevent aspiration and suffocation.

Injuries about the mouth and jaw sometimes necessitate traction on the tongue and even an emergency tracheostomy may be necessary to assure an open airway.

The second condition in which first aid treatment is essential to save life is the stoppage of hemorrhage. There has been a great misconception as to the means of stopping hemorrhage, particularly in the early years of World War II when first aid students were advised to use pressure points and tourniquets, particularly in Red Cross courses and in most first aid manuals.

There is one efficient, harmless and easy means of stopping hemorrhage, and that is by the pressure bandage. The indiscriminate use of the tourniquet is certainly to be condemned.

As a matter of fact, Sir Reginald Watson-Jones has indicated that in his opinion the tourniquet should not be permitted in first aid kits, so that the person giving first aid would not be tempted to use it.

Life Saving Measure

There is no doubt that on occasion a tourniquet may be a life saving measure, but such an instance is quite unusual, and the tourniquet must necessarily be applied immediately after the accident. In most cases, the complete severance of an artery, such as a complete amputation of a limb by a railroad train will result in a spasm of the artery preventing fatal hemorrhage.

If the artery is only partially divided, this spasm does not prevent continuing hemorrhage, however, and in these rare cases a tourniquet may be necessary. However there is danger in a tourniquet applied too loosely: venous bleeding may be serious or fatal.

A tourniquet applied too tightly causes damage to nerves and blood vessels and deprives the limb of collateral circulation, and if left on too long, will result in ischemia with tragic results. In my opinion, the teaching of students in first aid pressure points, and in the use of a tourniquet is an entirely useless procedure and should be discontinued, except to stress the dangers of their application. It should be emphasized that the one means of stopping severe hemorrhage is by means of a pressure bandage directly over the bleeding area.

The third important condition in which first aid treatment is helpful is the condition of shock. It is seldom possible to treat shock properly at the scene of the accident, but certain measures can be taken to prevent these conditions which cause shock.

The stoppage of hemorrhage, the proper splinting of a fracture, and the application of blankets to keep the patient warm are important steps in every injured case. On occasions, intravenous fluids may be given immediately by the first aid attendant, if facilities are available.

It is interesting to note, however, that in the Worcester tornado report, the reporter states that in a large percentage of those cases having received intravenous fluid on the field, the needles had slipped out and the fluid had infiltrated the skin.

He gave the impression that perhaps in many of these cases intravenous therapy had merely caused delay in the transportation of the patient to the hospital and had not served a useful purpose.

Perhaps it would be wise to make sure that intravenous therapy be efficient before efforts are made to institute it in the field.

Another important consideration has to do with the splinting of fractures and the protection of the patient in transportation. All bones and bones suspected of being fractured should be splinted before the patient is transported, and the simplest type of splinting is the best.

In the upper extremity, the upper arm may be strapped to the body for support and a board splint or magazine applied to the forearm for immobilization.

Fractures of the thigh and hip and many fractures of the lower leg should be splinted by means of a Thomas splint with moderate traction.

This means of transportation prevents considerable damage from motion at the fracture site. The lower leg may be splinted in a pillow board splint, if a Thomas splint is not available.

One of the greatest contributions made by the Trauma Committee of the American College of Surgeons has been the work done on the teaching of transportation of the injured.

The emphasis on the splinting of fractures at the site of the accident, as indicated by the aphorism, "splint 'em where they lie", has done a great deal to teach the medical profession the necessity of early splinting of fractures. Not only does splinting protect the fractured bone fragments and adjacent soft parts from further injury, but it is also helpful in preventing blood loss and alleviating pain. Proper splinting of fractures is one of the most important steps in the prevention and treatment of shock.

It may be mentioned that other first aid measures in the transportation of the injured has to do with the injuries to the neck in which, of course after examination for spianl cord injury, the patient is transported on a flat surface. Great care is to be taken to prevent flexion of the cervical spine.

The patient with a suspected injury to his back should be examined for evidence of neurological involvement and should of course be transported on a board face up or on a blanket face down, so as to cause no flexion of the spine and to prevent damage to the spinal cord.

Dangerous Illustration

One of the first measures often taken by well-meaning by-standers is to lift the head of the patient and offer a glass of water or some stimulant. In recent issues of first aid manuals, there are illustrations of "the proper way to give an injured patient a drink." This is a dangerous illustration and should be deleted from the manuals.

No injured patient should ever be given a drink of a liquid. In the first place, he cannot absorb the fluid, and it will interfere with the administration of anesthetic later, and if the fluid be a stimulant, such as brandy or whiskey, the patient may be accused of intoxication when he arrives at the hospital for treatment.

The result of the treatment of a patient with multiple injuries may be determined by the treatment he received in the accident room. If on admission, the patient is examined by a competent observer and a proper course of treatment instituted, many serious disabilities may be avoided and many fatalities prevented.

A patient entering the hospital with a single injury, such as a fracture of the shaft of the femur or a fractured skull, will usually be assigned immediately to a special department, and his care will be directed by one surgeon who is responsible for his treatment.

There is usually no problem in assigning the responsibility in the case of a single injury.

However, if the patient enters the hospital with a combination of various injuries, each of which may be in the domain of a very specialized department, it may be quite difficult to be assured that the patient will receive proper care because of the divided responsibility.

This failure to coordinate several surgical specialties in the severely injured patients is too often the cause of neglect in many hospitals.

In most instances the first individual to examine the seriously injured patient is the least experienced member of the staff. He may be an intern or a junior resident, or a substitute medical student. He must then decide who should be called to direct the care of the patient.

In many cases the assignment of the case does not constitute a problem if the most severe injury is obvious and is confined to one speciality.

However, the problem may be a very serious one, if, for example, the patient has a neurological condition which needs attention and an abdominal injury in addition to multiple fractures.

In such a case, one surgeon should be assigned to take charge of the case, and he must take the responsibility for the care of the patient regardless of what serious injuries involve other surgical specialties.

It is not important whether the surgeon in charge be the neurological surgeon, general surgeon, chest surgeon or orthopedic surgeon, but it is essential that whoever is responsible assume his responsibility and see to it that the patient is not neglected because of the lack of coordinated care.

In many hospitals the hospital itself assigns the direction of the treatment of the severely injured patient to one individual, and it is his responsibility to see to it that other consultants are called and perform their functions at the proper time. It is most important that the responsible surgeon see the patient immediately, examine him carefully, and direct his immediate treatment. Telephone consultation and direction of the case without examination often leads to disaster. Too often, particularly in the late hours of the night, the responsible surgeon will take the diagnosis and observation of an untrained or inexperienced intern and neglect his most important duty, which is the complete and thorough examination of the patient as soon as possible after his admission.

When a patient is admitted to the accident room, the first duty of the surgeon is to make a complete and thorough examination, removing all of the clothes from the patient and examining every part of the body. The most obvious serious conditions must be considered first.

An open airway and satisfactory respiratory exchange is essential for survival, and all mucous, blood, and vomitus must be removed from the mouth and pharynx, sucked from the bronchial passages, and if necessary, a tracheostomy performed, particularly if there is paradoxical respiration from a crush injury to the chest.

Sucking wounds of the chest must be controlled and hemo- and/or pneumothorax should be evaluated and adequate decompression carried out.

The next most important consideration is the

treatment of hemorrhage and the treatment and prevention of shock. Every case that arrives at the hospital after serious injury must be treated as a good candidate for shock, if he is not in shock at the time of admission.

He must be observed for internal hemorrhage. He must immediately have blood drawn for grouping and cross-matching, and sufficinet blood should be made available when it is necessary.

External hemorrhage should be controlled by means of pressure bandages, as mentioned above.

It is rarely necessary to apply a tourniquet in the accident room. It is often necessary to remove a tourniquet if the bleeding continues due to the fact that the tourniquet has been applied too loosely causing a continuation of venous bleeding.

If a tourniquet has been applied tightly to an injured extremity, and the bleeding has ceased, it is better to leave it in place until proper preparation is made for the treatment of shock and its prevention, because sudden removal of a tourniquet from an injured limb may suddenly send the patient into shock. The patient should be left in the emergency room until such a time as his condition is stabilized.

X-rays should be taken in the accident room by means of a portable machine, so that the patient does not have to stand the transfer from accident room to x-ray and return.

If it is necessary that the patient be operated upon immediately, he should be sent to the operating room where he can be observed, prepared, and the proper time chosen for operation.

He should not be sent to his ward and then be transferred again to the operating room. To transfer an injured patient from stretcher to bed and bed to stretcher is harmful.

The indiscriminate use of morphine in shock is to be condemned. Morphine should be given only for pain and not routinely for the treatment of shock. The danger in morphine administration is that it may not be absorbed when the patient is in shock, and a second dose may be given later, and when the peripheral circulation picks up the multiple doses of morphine, dangerous poisoning may result.

If the patient has a fracture, or if a bone is suspected of being fractured, and no splints have been applied before being transferred to the hospital, proper immobilization must be instituted in the accident room. If the immobilization is not properly applied, this must be corrected in the accident room.

It may be pointed out that while the examination and correction of the serious conditions of interference of respiration, shock, and hemorrhage are being taken care of, blood is drawn for grouping and cross-matching, and tetanus antitoxin or a booster dose of tetanus toxoid is administered in the case of open wounds. The initial doses of a broad spectrum of antibiotics are also given in the accident room.

After the emergency and urgent problems have been evaluated, it then becomes necessary to work out a plan of priority for the treatment of other injuries. The patient must be evaluated as to every possible area in which an injury may be sustained.

We have found in the statistics of the Auto-Crash Injury Research program at Cornell and verified by the admissions to our hospital that there is a very definite pattern of frequency of injury to various areas of the body.

The head was found to be most frequently injured, and these injuries could usually be ascertained or suspected because of the external evidence of injury to the head as well as the state of consciousness.

The evaluation of the head injury is an important factor in determining whether or not the patient can be expected to withstand operative procedures for injuries to other systems. It is most important that this evaluation be determined within as short a time as possible after admission to the hospital.

The next area most frequently involved in injuries in automobile accidents was that of the lower extremities. Here again the injuries to the lower leg and thigh were quite obvious if only a single area was involved, but the injury to the hip in particular was often masked by the other lower extremity injuries and even an x-ray examination, often inadequate in the emergency examination, would fail to disclose the posterior dislocation with fractures of the posterior lip of the acetabulum.

The third area most frequently injured was that of the chest and dorsal spine. As mentioned above, injuries to the chest were often obvious due to the interference with respiration; and crushing injuries to the chest often necessitate a trache-ostomy.

This procedure has been used much more frequently in recent years even in multiple fractures of the ribs without actual interference with the physiology of respiration.

Certainly in paradoxical respiration, it is often a life saving measure, and this procedure alone may be enough to take care of the interference with the respiration and obviate the necessity of traction to the chest wall or internal fixation of the segmental fractures of the ribs.

The tracheostomy, although a simple operation, has certain complications and should never be done as an emergency per se but should be done in the operating room with careful preparation and with careful technique.

There are certain precautions which should be

taken, particularly in the use of a long enough tube with a large enough diameter so that full benefit of the airway may be obtained. A transverse incision is to be preferred over the vertical incision because the latter leaves a disfiguring scar.

One of the frequently missed injuries in this area, we found to be the fracture of the dorsal spine because in the patient having multiple injuries, this area may not have important symptoms, and unless the injury is suspected and proper x-rays taken, serious damage may be done to the spinal cord by improper movement of the injured patient.

The next area found to be injured most frequently was that of the upper extremities, and often the injuries were of a minor nature and missed for several days because of the more serious injuries elsewhere.

Injuries to the pelvis and bladder were of less frequency than those mentioned but often were not discovered because of inadequate investigations. If an injury to the bladder is suspected, immediate catherization should be performed if possible, and if the catherization is difficult, injury to the urethra may be suspected or discovered, and proper steps taken to treat the injured urethra.

X-ray examination of the bladder and kidneys may be done, and considerable information gathered from the catherized specimen. Abdominal injuries occurred less often, but they must always be suspected.

They are often masked and the symptoms may develop hours after admission to the hospital. Frequent observations of the suspected injured abdomen should be made, and although there is considerable difference of opinion as to the efficacy of the abdominal tap, it is, when positive, very helpful in making a diagnosis of intra-abdominal hemorrhage.

Even though the patient may have multiple injuries of a serious nature, it is essential that the fracture be treated as soon as possible, and if one of the injuries is an open fracture, the surgeon should be alert to the fact that early operation is essential, and he must seize the first opportunity to take care of the fracture so as to prevent loss of a limb or late disability.

Too often the patient with a suspected head injury or an abdominal injury may be allowed to lie in bed for days before proper disposition is made of an obvious open fracture that should be treated immediately. This, of course, is a question of surgical judgment, and the patient's life should not be endangered by an procedure which can be delayed.

However, often times a debridement can be done in the presence of a head injury and the anesthesia can be local, and even if general, it is not necessarily contra-indicated in a head injury. Cooperation between specialists and sympathetic understanding of the problems of multiple injuries is necessary in any hospital where large numbers of seriously injured patients are received.

Fortunately, it is relatively uncommon in present day hospital care to encounter specialists who demand treatment of injuries in their own field at the expense of other necessary treatment.

A neurological surgeon is often concerned only with the result of the injury to the central nervous system, and since his patients may die as a result of a head injury, he may consider a fracture as a relatively minor condition.

He may order delay in the treatment of a fracture on the grounds that an anesthesia, anoxia or an operative procedure on a bone might cause an aggravation of an intra-cranial lesion.

If, in his opinion, such other treatment might jeopardize the patient's life, he is quite justified in not permitting further treatment.

However, the neurological surgeon does not alway recognize that fractures need emergency treatment, and occasionally a bad result in a fracture is due to his unnecessary delay in treatment.

The same may be said for the chest surgeon and for the abdominal surgeon, although error in treatment is much less apt to occur as the result of an abdominal injury or chest injury as it is with a head injury.

If the responsible surgeon in charge of the multiple injury case has a broad knowledge of trauma, he will make sure that the patient receives proper treatment regardless of the specialty involved.

Summary

In view of the rapidly increasing number of multiple injuries as a result of auto crash injuries and the mass casualties that can be expected to arise in a world conflict, it is wise for each hospital to investigate its facilities for the care of a large number of seriously injured patients and organize a program based on the experiences of the minor catastrophes reported from various hospitals in this country.

The medical profession is responsible to educate the lay public and to help the Red Cross and other agencies develop plans to improve the first aid care in the case of catastrophes as well as auto crash injuries.

The care of the patient with multiple injuries in the accident room of most hospitals can be greatly improved. A concerted effort to fix the responsibility of the patient in the hands of one surgeon and to recognize the multiplicity of observations and treatment which are necessary to preserve life and limb and prevent disabilities, may result in improving our care of these patients.

Malaria in The Southwest

By Jack A. Bernard, M.D., F.A.C.P. and Branch Craige, M.D., F.A.C.P., El Paso

Malaria is so rarely seen in the El Paso area that it is often unsuspected as a cause of fever. The observation of three cases in patients shortly after their return from a trip to Mexico prompts us to draw attention to malaria as a cause of undiagnosed febrile illness.

Case Reports

Case 1. J.A.S. was a 28-year-old male with a history of chills and fever daily for four days. He had been on a camping trip to Mexico two weeks before and had been to Guadalajara, San Blas and Mazatlán.

Physical examination revealed no abnormalities. The neck was supple. The chest was clear. The spleen was not palpable. Neurological signs were negative. The blood count showed 4.12 million red cells, hemoglobin of 12.3 grams and a white count of 6.800 with 40 percent polymorphonuclear leucocytes. 2 percent stab forms, 58 percent lymphocytes. A blood smear showed numerous malarial parasites.

The patient was placed on chloroquine and primaquine, and in 24 hours his temperature was normal. Except for weakness, he had no further symptoms and had a smooth recovery.

Case Two

E.P.W., a 38-year-old male, had had chills and high fever daily for five days and was treated with penicillin and other antibiotics with no improvement.

The diagnosis of malaria was not suspected until it was learned that the patient's friend (Case 1) had malaria and had been a companion on the above camping trip to Mexico.

Physical examination was negative except that the spleen was palpable one finger's breadth below the costal margin. The laboratory findings showed a red blood cell count of 3.47 million, hemoglobin of 14.25 grams and a white blood cell count of 3,050 with 51 percent polymorphonuclear leucocytes, 36 percent lymphocytes, and 8 percent stab forms. Malarial parasites were numerous in the blood smear.

The patient was placed on chloroquine and primaquine, responded promptly, and had no further difficulty.

Case Three

L.M., a 25-year-old housewife, had been in Mexico for one month and had visited Acapulco, Mexico City, Puebla, Taxco and Cuernavaca.

For eight days she had been ill with fever, headache and some stiffness of the neck.

She had been treated with penicillin, erythromycin and mixed sulfonamides for several days without relief. The temperature was 106°, but the physical examination was otherwise not remarkable. There were no neurological signs. Laboratory studies showed a blood count of 4.25 million red cells, 11.7 grams of hemoglobin (83 percent), 5,000 white cells, with 82 percent polymorphonuclear leucocytes, 12 percent lymphocytes, 5 percent monocytes and 1 eosinophile. A few malarial parasites in the schizont stage were seen on the blood smear. With chloroquine diphosphate recovery was rapid.

Diagnosis

The diagnosis of malaria is suggested in an otherwise obscure febrile illness by the following:

History of Travel in Endemic Malarial Areas. The incubation period of Vivax (tertian) malaria is 10 to 20 days or longer, depending upon the strain of Vivax. In recurrences the interval between attacks varies with the strain, the amount of immunity developed by the host, and the type of drug used to suppress the previous attacks. In Falciparum malaria, symptoms may be of any variety; and a history of travel in the tropics may be the only suggestive clue.

Spiking Fever. The first few days of Vivax malaria may show an irregular remittent fever. It is very common later to have daily spikes due to a double tertian infection rather than fever every other day.² Brief high fever (105-106°) is commonly seen in malaria and there is probably no other disease in which a patient may look so healthy a few hours after such a temperature. Prostration and severe malaise is often lacking between severe febrile episodes.

Herpes Labialis commonly occurs in malaria as it does also in other infections especially the common cold, pneumococcal, and meningococcal diseases. Splenic enlargement, anemia, and cachexia

are late signs and should not be awaited before the diagnosis is suspected.

Diagnosis Established

Diagnosis is established by the observation of the malarial parasites in the thick or thin blood smear. Parasites may be overlooked early in the course of the disease because in the first attack of malaria there may be considerable fever before there is a very heavy parasitemia.3

The untreated patient gradually develops a heavier parasitemia and the demonstration of the parasites day by day becomes easier in such cases. In subsequent attacks because of increasing host resistance parasitemia becomes heavier before fever is produced and diagnosis accordingly becomes easier.3 It is not necessary to wait for the chill or fever to take a blood specimen for examination.

On the other hand, the administration of even a small dose of suppressive drug may so reduce the number of visible parasites as to render diagnosis by blood smear impossible.

Accordingly, blood smears should be made before any antimalarial drug is given. Mild suppressive effect may result from various other drugs and make the diagnosis more difficult without relieving the patient's symptoms.

Treatment

Treatment of Vivax malaria is now simple, safe and reliable. In doubtful cases the use of chloroquine may be relied on to exclude the disease.

Chloroquine⁴ is to be preferred over atabrine and quinine because of its prompter effect, longer suppressive action, freedom from staining the skin and relative lack of other toxic effects. The dosage is ten 0.25 gram tablets of chloroquine diphosphate (Aralen®) administered six the first day, in divided doses, and two on each of the next two days.

Fever and parasitemia will be eradicated in 48 to 72 hours or less; but the exoerythrocytic forms are not eliminated and relapse may occur in some patients at a later date.

The liability to relapse depends upon the strain of Vivax, the development of immunity, and the strength of the original inoculum. Amodiaquin (Camoquin®) is another suppressive drug which may be substituted for chloroquin.

Prophylaxis

Prevention of subsequent relapse may be assured by the use of primaquine, one 15 milligram (primaquine base) tablet daily for 14 days. Because a rare patient may develop hemolytic anemia, the blood and urine, particularly in colored individuals who are more prone to have this complication, should be observed for evidence of hemolysis and the drug stopped if any hemolysis is noted.

Primaquine is usually nontoxic in a dose of 15 milligrams a day for fourteen days and will destroy the exoerythrocytic forms. The exoerythrocytic forms are responsible for the continuing asymptomatic infection which in some patients results in periodic flareups of parasitemia and fever.

Summary

The world's most common serious infection is a rarity in the arid Southwest. Malaria should be suspected in febrile patients particularly in those returned from endemic areas.

The authors are indebted to Dr. Carl Milchen for permission to report case 2.

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Southwestern Association Lays Plans for October Meeting

The social program will be expanded and more time will be provided for questioning guest speakers on individual cases at the next annual meeting of the Southwestern Medical Association, scheduled for sunny Tucson October 23, 24, and 25.

According to Dr. Blair W. Saylor of Tucson, publicity chairman for the meeting, the Southwestern program will be unique in several aspects.

Small groups will be formed to enable the doc-

tors to ask questions of the guest speakers regarding individual cases. The doctors will be able to circulate from one group to another, if they so desire. They are asked to bring along individual case histories.

The program will be arranged to provide more time for physicians to become acquainted and at the same time to maintain a high quality of scientific material. Slogan for the meeting will be "Learn and Have Fun Together".

MONTHLY CLINICAL PATHOLOGICAL CONFERENCE EL PASO GENERAL HOSPITAL January 16, 1958

F. P. Bornstein, M. D., Editor—Case Number 958 Presentation of Case by C. P. C. Logsdon, M.D.

History-Dr. Nathan Kleban:

A 50-year-old unmarried Negro woman entered the hospital because of troubled breathing, on November 23, 1957, and died 20 hours later.

In February, 1952, the patient was seen for the first time with an illness consisting of sharp middle and left anterior chest pain which limited inspiration, cough, sputum, fever up to 104.6 for seven weeks, signs of left pleural effusion and an increase in size of the heart shadow on X-ray film.

There was moderate anemia; repeated blood tests showed positive Kolmer, negative Kahn; acidfast organisms were not found in studies of four sputum specimens. She was treated for congestive heart failure and given anti-bacterial and antibiotic drugs.

For one week, three million units of penicillin were given daily. This was doubled during a second week, then stopped. After almost six weeks, the patient refused treatment and tests, was discharged with daily temperature elevations to 100, disappearance of the pleural effusion and decrease in heart size.

From Cardiac Clinic

The patient was admitted for the second time in February, 1955, referred from cardiac clinic because of left anterior chest pain when breathing, and swelling of the feet.

Hypothyroidism was suggested by low voltage of the QRS complexes in the limb leads of the electrocardiogram, but the protein-bound iodine determination was 6.0 gamma per cent.

The patient signed herself out of the hospital in one week. Pedal edema was unchanged. Breath sounds were distant and rales were present at the left base. The liver was not enlarged. A systolic murmur was described at the apex.

Chills, feverishness, breathlessness and mild left chest and right leg pain brought the patient to the hospital in October, 1955. There was pulmonary congestion, bilateral pleural effusion, no remarkable heart findings except enlargement, and probable pericardial effusion suggested by the roentgeneologist, and pedal edema. The liver was not felt.

Temperature elevation of 102 subsided to normal over a period of one week. Three sputum specimens were cultured for acid-fast bacilli with no growth. She was treated with a cardiac regime, antibiotics, and anticoagulants for thrombophlebitis. After 12 days, she signed herself out.

Occlusion Demonstrated

A venogram on January 21, 1957, demonstrated occlusion of the right greater, and of the left small, saphenous veins. Three days after the venogram, the patient entered for the fifth time, on January 24, 1957, with consolidation of the right middle lobe, which cleared in one week. A skin rash disappeared when penicillin-streptomycin injections were stopped. The February, 1955, history stated that the patient was allergic to penicillin.

Acute pyelonephritis brought the patient to the hospital in April, 1957. Penicillin and streptomycin were given for two days. Except for initial hypotension, there was a relatively uneventful recovery. Serological test for syphilis was negative.

Her seventh admission was in May-June, 1956. In addition to a previously recorded history of pneumonia in 1947, there had been a left hip and pelvic fracture sustained in an automobile accident in 1950, for which she was hospitalized at Torrance, California, General Hospital. There was no history suggesting rheumatic fever. Past history, system review, and family history were not otherwise pertinent.

Blood Pressure Normal

The attending physician found a normal blood pressure; sinus tachycardia, edema up to the level of the eighth thoracic verterba, distended neck veins; rales, diminished breath sounds and a percussion note which was duller at the left base than the right; a diffuse gentle heaving over the apical region of the pericardium, equal second aortic and pulmonic sounds, slight muffling of heart tones, grade I systolic mitral murmur, duplication of first mitral sound; liver edge five cm. below the right costal margin; hepatic jugular reflex; no myxedematous appearance.

Low voltage persisted on electrocardiograms; P-R interval was .21; P-wave was broad and

notched. Radioactive iodine uptake study was reported as "hypothyroidism secondary to pituitary dysfunction." BMR was minus 6 and cholesterol 170 mg. percent. Cardiac fluroscopy was reported as "no significant change." Diuresis, from 187½ to 134½ pounds occurred over a six weeks period.

The attending staff doctor favored a diagnosis of constrictive pericarditis. The cardiac consultant disagreed. He thought there was a grade II mitral and possible grade I secondary aortic systolic murmur. Discharge diagnosis was probable rheumatic heart disease.

The patient was re-admitted in July, 1957. She weighed 162 pounds on the sixth day; 147 when discharged six weeks later. Atrial fibrillation appeared and was converted to sinus rhythm by quinidine. Twenty micrograms of 1-triiodothyronine daily was prescribed.

Cough productive of white sputum, increasing dyspnea, orthopnea and dependent edema hospitalized the patient for two weeks in October, 1957. There was an 11-pound diuresis from admission to the fifth day. She was no longer on thyroid hormone.

The tenth and final entry was on November 23, 1957, when the patient was breathing with great effort, complaining of pains in the swollen legs, and of weakness. She became hypotensive, and went into coma before she died.

Dr. Vincent Ravel:

The admission film shows a marked enlargement of the cardiac silhouette. There is, at this

time, no evidence of congestive failure. The aorta is not particularly prominent.

I don't see any notching of the ribs or anything that would suggest a coarctation of the aorta, but a very prominent left ventricular segment suggests a hypertensive cardiovascular disease.

The next film dates from 1952, at which time the chest shows lobar type pneumonia in the right lower lobe, and there is a significant decrease in the size of the cardiac silhouette. This, of course, suggests a number of interesting possibilities.

The fact that the cardiac silhouette has decreased in size suggests that there may have been a pericardial effusion, or there may have been a myxedema with a subsequent re-establishment of the thyroid balance which would give more tone to the cardiac muscle.

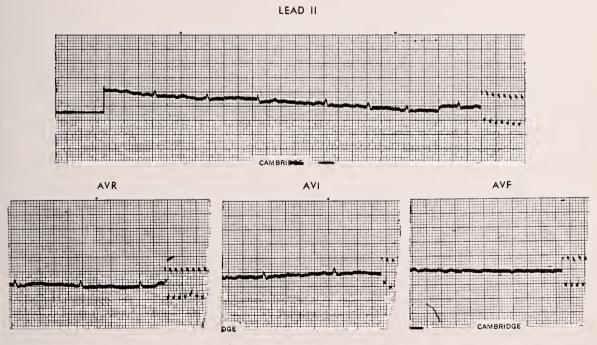
Next Film

The next film shows partial resolution and there is an interlobar collection of fluid in the chest. Then, in 1956, the patient again returned with a pneumonitis, this time in the right middle lobe, and a pleural effusion on the left.

Here again, we run into the problem of a myxedema with a hypothyroidism. The cardiac silhouette at this time, however, shows no significant change from the previous examination.

We did a venogram, and it showed occlusion of the saphenous on the right and the small saphenous on the left. I don't think those are particularly contributive, except as part of a peripheral failure syndrome.

As I understand, she had pitting edema of the



7/29/57—Atrial fibrillation.

extremities and peripheral failure. Again, we come back to the problem of a hypothyroidism.

Another Bout

Then we again observe another bout of pneumonitis and resolution. The film in 1957 shows a complete resolution of the pneumonitis at the right.

In chest radiography, whenever there are repeated attacks of lobar type pneumonia, you must consider a neoplasm or some sort of obstructive syndrome in the bronchial tree.

We have here bouts of pneumonitis in the right lower and right middle lobe.

These might be explained on the basis of adenoma in the bronchus.

I want to show three more films, of July of 1957, with all the classic findings of congestive failure with pleural effusion and the increased markings at the bases.

Then, following treatment with thyroid and diuretics, the cardiac silhouette keeps changing. Certainly we can't exclude a pericardial effusion or pericarditis.

It was pointed out in the examination of 1955 that this could be a pericarditis with effusion. The final film, in October, 1957, her last admission, shows the findings of congestive failure with pneumonitis,

Iodine Study

Now the radio-opaque iodine study that we did suggested a possible pituitary hypothyroidism secondary to pituitary dysfunction.

We were able to increase the function of the thyroid gland on its radio-active iodine up-take study which showed this was a secondary hypothyroidism due to pituitary dysfunction.

I think of possibly several explanations for this syndrome: (1) I think there is a hypothyroidism; (2) possibly a pericarditis; (3) possible bronchogenic adenoma or neoplasm which caused repeated attacks of pneumonitis in the right middle and right lower lobes.

Dr. Kleban:

I would like to know if we have any information about this patient between 1952 and 1955? She was repeatedly in the cardiac clinic but we don't have the clinical portions of the charts—only the hospital chart.

We have a KUB that shows opaque material in the buttocks, possibly anti-luetic therapy, and there again, an aortitis, a luetic aortitis or pericarditis has to be considered.

Dr. Logsdon:

I want to thank Dr. Kleban for the protocol, for it is a truly comprehensive record. It is almost impossible to include everything, although it seems that everything pertinent is included.

I believe it was in 1956 that the patient's status as a constrictive pericarditis came up again for consideration. It had always been suggested by her EKG.

Her EKG was characterized by extremely low voltage which would suggest either an extreme hypothyroidism or a constrictive pericarditis. However, at that time the diagnosis of constrictive pericarditis was apparently ruled out by the following three things:

- (1) In constrictive pericarditis, the heart is a small heart. In the first place, it is usually caused by tuberculosis which does not attack the valves and invocardium and therefore does not cause a cardiomegaly. Any cardiomegaly and valvulopathy in constrictive pericarditis would be coincidental. It does not usually fit.
- (2) Electrocardiographically, in constrictive pericarditis, the heart is fixed and cannot be moved and the same potential is recovered with the same leads. As I recall, when we moved her the potential shifted.
- (3) There were murmurs and at times they seemed fairly significant, although not of anything particular. We could not pin them down to definite rheumatic heart disease, but we usually do not find murmurs in constrictive pericarditis.

Extensive Study

At that time, a rather extensive study was done by Dr. Kleban on the patient, and these studies showed hypothyroidism, following which the patient was controlled better than she had ever been before.

But I would like to point out for the first time she also came to the clinic regularly.

At that time, she was put on moderate doses of cytomel and I believe that she only tolerated 10 or 20 micrograms which is a pretty small dose, and she was given regular injections of mercury and she took diamox and digitoxin.

During that time, she was reasonably well controlled.

I think something happened that precluded the possibility of any real control of the patient's edema, and that was an intractable right heart failure. It may or may not have had something to do with myxedema. I don't see exactly how it could have.

Heart Failure

Apparently intractable right heart failure existed and we could never bring the patient under too good a control. Subsequently, she developed a very severe sensitivity to mercury and from that time on her course was progressively downhill.

The only time after that she was significantly free of edema was when tubes were put in her and left for quite a long time. Over a period of weeks, she drained down to practically normal.

Following that, she was never completely free of edema and free of discomfort, and we never

had her under control again.

So I feel that the edema was due more to severe right heart failure than to any possible myxedema.

That diagnosis was made on the basis of iodine take-up, but the PBI was normal.

First Illness

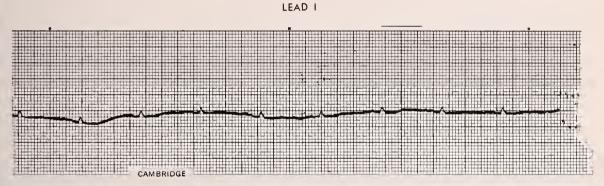
About the first illness, the protocol states that she was sent for the first time for an illness consistent with sub-acute bacterial endocarditis with a left anterior chest pain, limited respiration, cough, sputum, fever up to 104.

In the differential diagnosis, I will consider only the things that we considered at the time. I won't attempt an encyclopedic differential diagnosis.

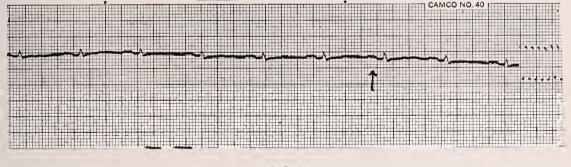
- 1. It became fairly apparent that the patient had a severe right heart failure and there was no adequate explanation apparent for the cause of it.
- 2. We considered very seriously rheumatic heart disease, but you would have to postulate some fairly silent lesions.

I would say possibly the last year and a half of her life, she had a grade II at least, maybe grade III, systolic murmur at the apical area.

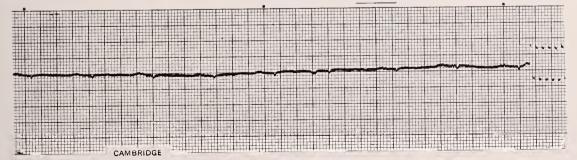
Pershaps we didn't hear it constantly, but



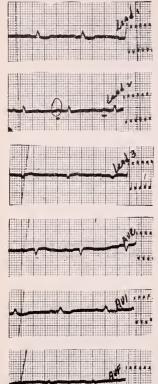
LEAD II



LEAD III



8/3/57—Return of normal sinus rhythm. EKG suggests left atrial enlargement.



10/18/57—First degree AV block.

we heard it every now and then. It was a wholly systolic murmur. It was not, however, the type of murmur that you would expect to hear in a significant mitral regurgitation.

There were no pathognomic signs of mitral stenosis. So, if we are dealing with rheumatic fever, we would have to postulate first that this was rheumatic fever in 1952.

The febrile illness that she had in 1952 did not respond to treatment and I don't remember that illness personally.

At that time, she had heart damage and then she developed silent lesions, perhaps a mitral regurgitation, and we would still have to postulate a precocious and fairly intense pulmonary vascular resistance developing to give us a subsequent cor pulmonale type of right heart failure which ultimately became intractable.

Definite Hypertension

There is something that was not mentioned on the protocol. In fact, it may not have appeared in our hospital chart. At times, she had a very definite hypertension, but not a severe one, always moderate.

Added to whatever may have been the cause of her right heart failure could have been a myxedema, although it did not appear to us that myxedema played a very important part, at least in the last few years of her illness, which were the only years that we witnessed.

Now, another thing that might have d termined the character of her later illness, and which was pointed out by Dr. Ravel, is pulmonary embolization. Some of the pulmonary symptoms here might have been due to repeated pulmonary embolization.

I would like to suggest the possibility of right heart failure due to repeated pulmonary embolization with occlusion of the multiple radicles of the pulmonary arterial tree.

I think, terminally I would expect a rather larger heart than that.

She must have had a good deal of thrombosis

TAKE A LOOK AT NEW DIMETANE THE UNEXCELLED ANTIHISTAMINE

up and down the venous system up to and including the right auricle, but aside from those possibilities, I can think of nothing very significant.

That is, right heart failure with a possible etiology of pulmonary embolization, possible silent rheumatic heart disease.

Dr. Bornstein:

In a cardiac silhouette, is there any way to differentiate between the outline of the atria and the ventricles?

Dr. Ravel:

Yes, the atria can be differentiated by oblique views. The anatomist really got things a little confused in describing the heart, because what we are seeing in a PA view of the chest is really an oblique view of the heart. In order to get a PA view of the heart, and a lateral view of the heart, you have to put the patient in both obliques. In a saggital view of the chest here, you are seeing an oblique view of the heart. In order to differentiate the various chambers, you have to put the patient in the oblique position and then you get true saggital and lateral views of the heart.

Clinical Diagnosis: Intractable right heart failure with elephantiasis.

Dr. Logsdon's Diagnosis: 1. Right heart failure and pulmonary embolization. 2. Silent rheumatic heart disease.

Pathological Diagnosis: 1. Chronic constrictive pericarditis. 2. Chronic dilatation of both atria. 3. Extreme peripheral edema.

Pathological Discussion-Dr. F. P. Bornstein:

On autopsy, we found the body of a middle aged, well nourished Negro woman. The most prominent feature on external examination was the extreme edema of the lower extremities which had swollen to proportions of elephantiasis.

The skin over the extremeties was hard and indurated.

The pleural cavities were obliterated by adhesions.

The pericardial cavity was completely obliterated by stone-hard fibrous adhesions.

These adhesions made the examination of the heart somewhat difficult because the heart could not be shelled out of these adhesions.

The adhesions were such that they formed a constrictive band between the atria and the ventricles which produced a very extreme dilatation of the atria.

In a way, then, this was a heart which was



suffering from a combined mitral and tricuspid stenosis, inasmuch as the entire valvular ring was constricted by external pressure.

The ventricles were small, the coronary arteries were not remarkable.

In addition, there was acute pulmonary edema. On microscopic examination, it was interesting to note that while the superficial layer of the pericardium was composed of scar tissue, an intensive, active inflammatory process was present in the deeper layers.

This inflammatory process extended into the superficial layers of the myocardium. In short, this was not simply a mechanically impaired heart, but a heart which still was suffering from an active chronic inflammatory process.

I am unable to come to any precise conclusion about the nature of this inflammatory process. It is somewhat suggestive of a rheumatic type inflammation, but this is only a suggestion.

The thyroid was not remarkable. The peripheral venous system was free of thromboses.

Summary

In summary, then, we have a woman with a long standing history of heart disease and decompensation. The main difficulty was a mechanical one due to a constrictive pericarditis which was still actively progressing at the time of death.

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Texas Medical Association, Annual Meeting, Houston, April 18-21, 1958. Annual Meeting of the Texas Orthopaedic Association will be held in conjunction with meeting of Texas Medical Association.

Fifth International Congress of Internal Medicine, Sheraton Hotel, Philadelphia, April 24-26, 1958.

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New Mexico Medical Society, Annual Meeting, Albuquerque, N. M., May 14-16, 1958.

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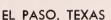
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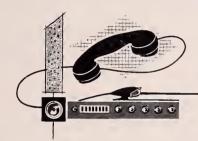
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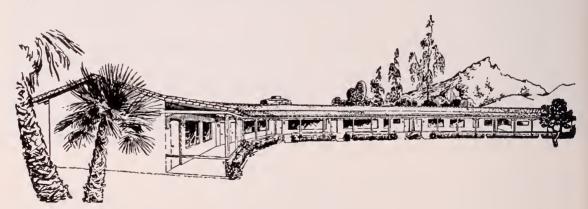
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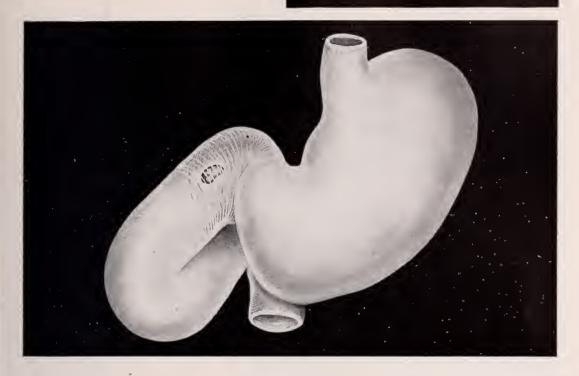
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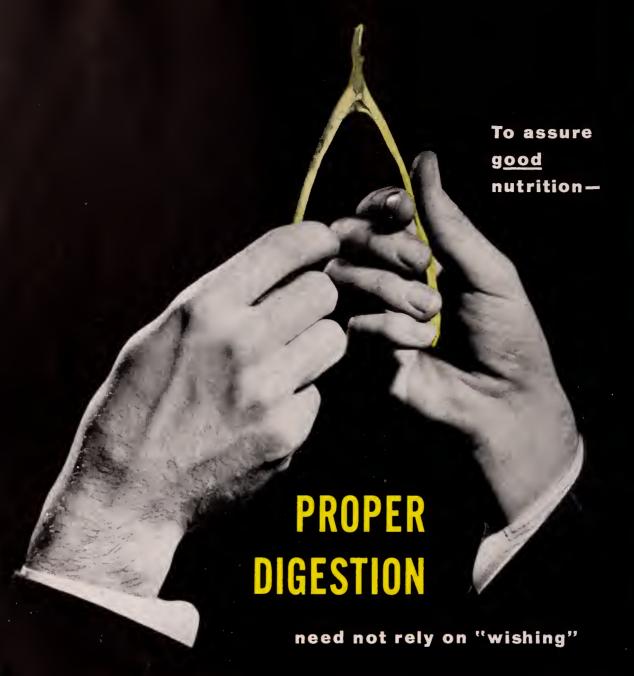
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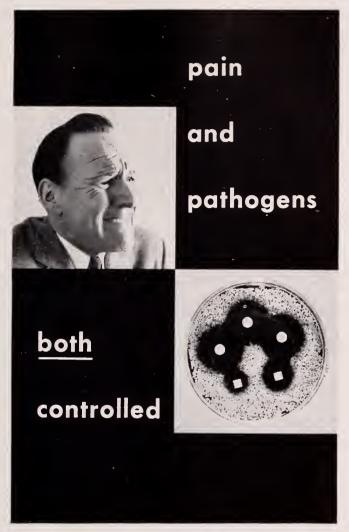
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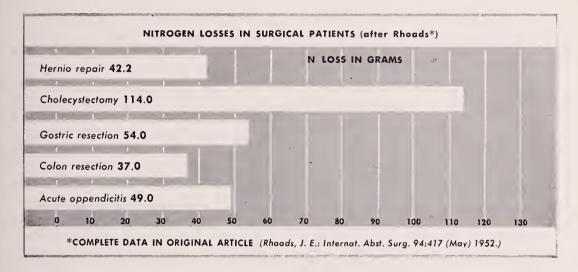
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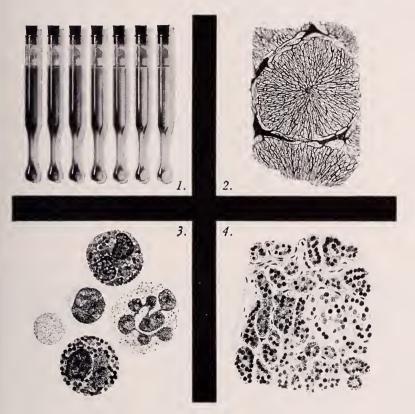
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References: 1. Beaser, S. B.: Metabolis n. 5:933 (Nov.) 1956. 2. Zeffren, J. L., and Sherry, S.: Metabolism 6:504 (Nov.) 1957. 3. Kuhl, W. J.: Jr.: Diabetes 6:61, 1957. 4. Bander, A.: Ann. New York Acad. Sc. 71:152, 1957.

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APRIL, 1958

No. 4

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 Ryon, E. R.: A New Aid to Tonsil and Adenoid Surgery, Clinical Medicine, 5, 327 to 331, (Morch) 1958.



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Berkeley, California

Southwestern MEDICINE

VOL. XXXIX APRIL, 1958

No. 4



By W. Compere Basom, M.D., El Paso, Orthopaedic Editor

ORTHOPAEDIC SURGERY NOTES

The Treatment of Fat Embolism

By GARRETT PIPKIN, M.D., Kansas City

Dr. Garrett Pipkin of Kansas City appeared on the program of the Post-graduate School of Medicine, University of Texas, given in El Paso in conjunction with the American Fracture Association Meeting on Sept. 29, 1957. His paper was outstanding and it was felt that a summary was indicated. Dr. Pipkin has submitted the following summary.—W. C. B.

Recent work on this syndrome has emerged it from the limbo of the middle ages. It is no longer a subject for a debating society. It has now been defined, its incidence established, its mechanism reasonably well demonstrated, means of confirming its diagnosis are available, and principles of treatment are emerging.

Pelitier defines fat embolism as probable when fat globules, 10 to 15 micra, can be demonstrated in the circulating blood. Musselman and his coworkers have recently demonstrated that there is enough fat in the femur of an animal to kill it, that fat embolism may be expected in about one-half of all persons who have been moderately or severely injured, and that significant symptoms will develop in at least one-third of patients with fat embolism.

Diagnostic Importance

The diagnostic importance of a rapid fall in hemoglobin, as pointed out by Sophian and Koritschoner in the obscure Journal of the Missouri State Medical Association as it was called in 1936, apparently has not reached the general literature. It occurs early in the syndrome, preceding or concurrent with the initial temperature spike, and 36 to 48 hours before chest plates are of value. Where the hemoglobin goes, and how it is restored, in some instances spontaneously, is not understood. Studies on this phase are being continued.

Successful methods of treatment of fat embolism have been in the literature for over twenty years, only they have been overlooked or not intelligently applied. Nature provides most cases with a safety factor of 48 to 72 hours from time of injury until critical symptoms begin. It is in this period that much can be done. Indicated measures are:

Indicated Measures

- 1. Careful handling of injuries. Administrative transportation of major injuries on the second or third day from one hospital to another, even if the hospitals are in the same city, or even from the fracture ward to the x-ray room in the same hospital, can be hazardous.
- 2. Herman demonstrated protection against experimental fat embolism by using an alcohol-dextrose solution intravenously in 1933. Maximum protection was afforded by three injections 12 hours apart. The first injection was started as soon after the chemical insult as practical. In view of the now well established high incidence of fat embolism, alcohol should be started with all moderate and severe injuries. It certainly should be administered during all nailing operations, and is of benefit even as late as the fourth or fifth day when a chest plate shows an established snow storm. The alcohol-dextrose solution advised is now supplied in packaged bottles containing 1000 cc of 5 percent alcohol in 5 percent glucose. This much alcohol is equivalent to an ounce of ninety proof whiskey. When grandma breaks her hip, she should probably have a hot toddy while waiting for the ambulance.

Race Against Time

3. Once the syndrome is established, the surgeon is faced with a race against time as the syn-

APRIL, 1958

drome is usually fatal before, or else reverses itself about the sixth day post injury. Transfusions and oxygen have apparently been the balance of power in several eases.

- **4.** Frequent hemoglobin determinations are of value in determining the need for treatment and are of prognostic value as to life.
- **5.** With the wide application of intramedullary nailing, fatal fat embolism is being increasingly reported. Nailing of closed fractures should prob-

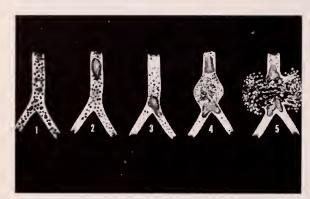


Fig. 1—DIAGRAMMATIC FAT EMBOL-ISM.

- 1. Normal elementary fat circulating in blood stream.
- 2. Enlarged fat globule from fracture site in circulation.
- 3. Enlarged fat globule elongates to pass saddle of capillary bed at first.
- 4. Several enlarged fat globules result in road block (mechanical fat embolism).
- 5. Vessel permeability destroyed, capillary leakage results in petchial hemorrhage (chemical fat embolism).

ably be postponed until a rising hemoglobin has been established.

6. Pelitier has again established the value of performing a bone operation under a tourniquet.

Successful Treatment

The author utilized his own fatal eases of fat embolism in an analysis of problems in management. He also presented a short series of severe eases in which fatalities might well have been expected, which recovered on the above described treatment. No ease of fat embolism has been posted on his service since he instituted these methods of treatment in 1954.

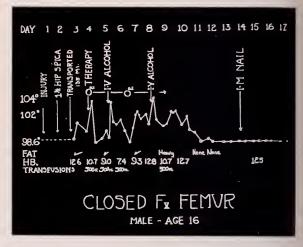


Fig. 2—ABSTRACT OF THE CLINICAL RECORDS OF CASE OF FAT EMBOLISM WHICH SURVIVED.

Note the falling hemoglobin determinations labeled "HB." Intravenous alcohol-dextrose solution, and oxygen therapy used in treatment of this case successfully.

Social Security Footnote

The government, while slow to acknowledge anything wrong with the Social Security System, underestimated the demand for benefits. Women who could obtain benefits at 62, 63, and 64 decided to do so even if the payments were less than they would be at 65. Farmers suddenly turned out to be older than expected. Some began to pay social security taxes on reported income of \$4200 which exceeded their income in prior years. Then they applied for benefits after paying

taxes for six quarters. Many people who had retired and were well beyond 65 years of age, dug up jobs for themselves and paid social security taxes for 18 months, thereby qualifying for benefits of from \$30 to 108.50 monthly for life. Social security experts in making their cost projections underestimated the ingeniousness of the American people when Federal give-aways are as widely advertised as are social security benefits,

CURRENT THERAPY

Acute Myocardial Infarction

(continued)

Anti-Atherogenic Factors—Diet

By Jack A. Bernard, M.D., El Paso

It is so easy and reassuring to relate coronary sclerosis to a faulty diet with its resulting abnormal blood lipids. Patients are eager for a diet as a panacea for their ills.

Physicians are just as eager to prescribe this panacea and perhaps some of the controversial anti-atherogenic substances so widely heralded on the present market. If we only *knew* what to *eat!*

Diet and Serum Lipids

There is presumptive evidence that coronary sclerosis is related in some way to the serum lipids and also that the serum lipids are related to diet.

Therefore one could immediately begin a discussion of the various dietary methods of lowering serum cholesterol, thereby preventing the formation of coronary plaques.

However, this is a concept—a theory—yet unproved, as there is no proof that reducing blood cholesterol will help prevent the development of coronary sclerosis. But patients with coronary artery diseases generally do have elevated serum lipid levels.

Atherogenic Factors

If diet is an atherogenic factor, its role must be a minor one, as there are many other very important and *proved* factors that we know definitely are associated with coronary sclerosis and occlusion.

For example, there is heredity and sex, over which we have no control; but more important to us as clinicians, there is hypertension, diabetes and obesity, for which we do have measures of control.

Hypercholesterolemic Diseases

Diseases accompanied by hypercholesteremia do have a higher incidence of atherosclerosis but atherosclerosis is not always associated with hypercholesteremia.

Diabetes, nephrosis, hypothyrodism, biliary obstruction, essential hypercholesteremia, and adrenal gland disturbances are all associated with hypercholesteremia, but atherosclerosis is not common in nephrotics, in myxedema, nor in long standing biliary obstruction with prolonged hyperlipemia.

Diabetes, of course, does predispose to atherosclerosis, patricularly where there is acidosis. This brings up the obvious: one very important way by which coronary sclerosis can be controlled is better supervision and control of the diabetic patient!

Hypertension

Control of hypertension is another extremely important method of reducing coronary sclerosis.

Interestingly, as recently as 10 years ago, it was believed to be a common antecedent of coronary occlusion in *both* men and women, and it was only five years ago that Master published an article in which he concluded this concept as being invalid. The control of hypertension is important in that it reduces the mortality from a coronary occlusion and even complications.

Patients with hypertension who develop a coronary occlusion have a much higher mortality, as much as two and one-half times that of coronary patients who do not have hypertension.

The incidence of complications is three times greater in such patients.

Hypertension in Women

In women, the importance of the control of hypertension manifests itself in a striking manner: women who develop a coronary occlusion before the menopause more likely will have hypertension, diabetes, or some other atherogenic factor.

Master found that 71 percent of the women who had coronary occlusions had had hypertension preceding the attack, whereas no more than 27.2 percent of the men sustained hypertension. Thus more than 70 percent of the men had a normal blood pressure before the onset of a coronary occlusion.

It is seen that hypertension, therefore, is a very significant etiologic factor in the production of coronary disease and occlusion in women.

Agents Which Control Blood Lipids

Since blood lipids seem to be associated with coronary sclerosis, it behooves us to discuss those agents which control blood lipids and perhaps thereby control atherogenesis. These include heparin, the sex hormones, thyroid, the "diabetic factor", and nicotinic acid.

Heparin

Clinically, heparin has been used in 200 mg. doses given subcutaneously twice weekly, and has been reported to be of some benefit in angina.

It has been shown that heparin activates an enzymatic substance in the body which has been termed the "clearing factor" and which will clear the turbid and milky appearance of the serum.

It has also been shown that a high fat meal has been shown to produce angina at about the time that the lipemia of the blood is at its highest. And finally, there is a state of hypercoagulability lasting for one and one-half to six hours after a high fat meal.

This relationship between dietary fat and hypercoagulability of the blood is receiving more attention.

From a pratical standpoint, however, heparin is expensive, painful, requires care in administration and there is the ever present hazard of hemorrhage.

Antilipemic agents are a possibility for the future.

For example, Laminarin sulfate M, a low-sulfated polysaccharide obtained from sea weed, has the antilipemic properties of heparin but has no anticoagulant action. (Besterman).

Estrogens

As regards the estrogens: the female sex factors do protect women, as coronary atherosclerosis is sixteen times more common in men than in women under the age of 40. (Russek says the ratio is 30 to one; over the age of 50, the ratio approaches one to one.)

In one study, only 11 of 146 women seen with myocardial infarction were premenopausal women, and of the 11, ten had diabetes or hypertension.

It is known that the serum cholesterol reaches its peak earlier in men (age 55) than in women (60-70 years). Also similar findings occur with the alpha-beta lipoproteins and the $S_{\rm f}$ 12-20 lipoproteins.

For example, the alpha lipoproteins are higher in women before the menopause, and afterwards, this is reversed to that of the male type. At the age of 60, women attain the high S_f 12-20 level which men have at the age of 30. These lipids are affected by hormonal administration.

Long term studies with the administration of female sex hormones in men are in progress but the loss of masculininity nullifies this as a form of therapy.

However, search goes on for a substance of the estrogen group which will affect the lipids favorably without causing any feminizing effect. In passing, it should be mentioned that Dock found in newborn infants that the intima of the coronary arteries was thicker in the male than in the newborn female infants.

Thyroid

Thyroid hormone affects the serum cholesterol but whether it affects coronary sclerosis or not is controversial.

Actually an induced hypothyroidism (which produces hypercholesterolemia!) is used in the treatment of coronary sclerosis and it is felt that the hypothyroidism induced does not necessarily accelerate the underlying coronary atherosclerosis.

In animals however atherosclerosis does not develop with cholesterol feeding (in the dog for example) until the animal is given propylthiouracil to produce hypothyroidism.

"Diabetic Factor"

It is assumed that diabetic patients are susceptible to atherosclerosis and this is particularly true in those who have acidosis.

It is felt that insulin is not a factor in this and the exact metabolic etiology is not known.

Nicotinic Acid

Nicontinic acid in large doses (three to six grams per day) will lower cholesterol. Its usefulness is limited by the side reactions of pruritus, urticaria and anorexia, but these can be reduced by administering the drug with or immediately after meals. However, there are no real toxic effects, and this seems a simple, safe, and inexpensive measure worthy of trial. Nicotinic acid amide is ineffective. The mode of action of nicotinic acid is not known.

Vitamin B₆

Vitamin B_6 (Pyridoxine) has been mentioned as important in the prevention of coronary sclerosis.

This is based on experimental work in which monkeys deficient in vitamin $B_{\mathfrak{g}}$ developed atherosclerotic lesions similar to those in humans.

However, there is no information that this substance will reduce the cholesterol level in humans.

Sitosterol

Sitosterol (Cytellin, Lilly) in animals was found to prevent the expected atherosclerosis and the usual rise in serum cholesterol.

Sitosterol is the sterol found in vegetable food, like soy beans, whereas cholesterol is found only in foods of animal origin.

Sitosterol does appear to prevent the absorption of cholesterol and apparently does have a lowering serum cholesterol producing effect in some patients (particularly those with high cholesterols) although contrary views have been expressed.

(To be continued) NEXT: DIET

APHORISMS and MEMORABILIA

Truths and Concepts Concerning The Gastro-Intestinal Tract

- 1. "Gastric retention alone is not evidence of organic obstruction, for retention can occur with lack of peristalsis due to worry, headache, emotion, etc."—E. EMERY, M. Clin. North America, 19: 1519, March 1936.
- 2. "Buccal pigment does not by itself prove that Addison's disease is present, for precisely similar pigmentation in the mouth is observed in some cases of pernicious anemia, of phthisis without suprarenal disease, and of malignant disease, whilst negro blood in the ancestry often causes buccal pigmentation in perfectly healthy persons."—H. French, Differential Diagnosis, Wm. Wood & Co., N. Y., 1936, p. 635.
- **3.** "Among the many sources of such mistakes by which the physicians may be misled and induced to conclude that the liver is the seat of disease when in fact it is not, feculent accumulations in the colon are perhaps the most frequent."

 —RICHARD BRIGHT, Clin. Memoirs on Abdom-

inal Tumors, The New Sydenham Soc. London, 1861, p. 242.

- **4.** "Never decide against obstruction as the result of the first enema; give a second two hours later, and if necessary, a third."—W. OGILVIE, Brit. M. J., 1: 2, 1937.
- **5.** "Enlarged spleen may be the only evidence of cirrhosis of the liver."—S. J. Gee, *Med. Lectures & Clinical Aphorisms*, Oxford Med. Publications, London, 1908, p. 273.
- 6. "There are only three things that give a nodular liver: syphilis, cancer and cirrhosis. In syphilis we do not ordinarily get nodules; we get masses as big as a fist. In cirrhosis the nodules are so small we cannot feel them. Cancer is the only disease with nodules of the size that we can feel."

 —RICHARD CABOT, New England J. Med., 205: 203, 1931.
- **7.** "Anybody with any considerable jaundice has albumin in the urine."—RICHARD CABOT, *loc. cit.*, p. 203.

Correction — Aphorisms

The following self-explanatory letter has been received by Dr. Babey:

Andrew M. Babey, M. D.

250 West Court

Las Cruces, New Mexico

Dear Doctor Babey:

Since undoubtedly a great many physicians like myself not only read and enjoy your "Aphorisms and Memorabilia," but are guided by them in clinical work, I thought I ought to call to your attention an item in the February issue which could have serious consequences.

You quoted Ralph Bettman, from The International Clinics, 1936, as stating that he did not believe in disturbing traumatic hemothorax unless

absolutely necessary.

Speaking as a thoracic surgeon, I can assure you that, although this was taught up to World War II, and in fact was an error perpetuated in the Military Manual of the National Research Council prepared at the outset of that war, it is now rather universally recognized that there has been a great deal of unnecessary morbidity, and probably even mortality, by this concept. It was based

partly on the misunderstanding concerning the clotting of blood in the pleural cavity. In any case, it is now stressed that it is imperative to remove as much of the hemothorax as is possible as soon as possible, not only to eliminate a medium for bacterial growth, but particularly to prevent the fibrothorax which can cause crippling function loss for the rest of the patient's life, and sometimes requires a decortication. The belief that the presence of the hemothorax would tend to prevent further bleeding has also long since been abandoned.

I leave it up to your good judgment as to whether some correction should be published, or whether it would be sufficient to simply eliminate this item from your collection.

> Very truly yours, Rodger E. MacQuigg, M.D. Lovelace Clinic Albuquerque, New Mexico

Dr. Babey acknowledges the error and wishes to apologize. The error occurred through carelessness while editing some very old aphorisms.

THE PRESIDENT'S COLUMN

Changes Suggested in Time of Inauguration Of Southwestern Medical President

By Louis G. Jekel, M. D., Phoenix

Last month it was pointed out that among the duties of the President of the Southwestern Medical Association is the writing of a column. The

Dr. Louis G. Jekel

President has great latitude in his choice of material. Sometimes the articles are good; sometimes—

Perhaps the most important duty devolving on the President, however, concerns his part in the annual convention. He is ultimately responsible for the program and the general conduct of the whole affair. Fortunately for him he has the Secretary and the

members of the various local committees to see to the details, and these persons always do a fine job. Nevertheless the final responsibility rests with the President, and a failure would and should be placed at his door.

Changes Suggested

It has been the custom to inaugurate the Presi-

dent at the end of the annual convention. The President then works through that year and up to the end of the next meeting.

I wish to propose the following changes in procedure:

- 1. The President-elect shall be Chairman of the Program Committee. It shall be his responsibility to prepare the program in the same manner as is now done by the President.
- 2. The President shall be inaugurated at the beginning of the annual session and shall remain in office until the beginning of the next meeting. He could then express his views in a Presidential Address and follow up with his monthly letter.

Functions

The functions of the President fall more closely in the category of rights and privileges rather than duties and obligations. I believe that by permitting him to start his term at the beginning of the meeting he can be in a little better position to exercise and enjoy those rights and privileges. In other words, to be President is an honor. Let us present the individual with full opportunity to realize and enjoy that honor.

DERMATOLOGY

The Late Therapeutic Results Produced By Low Voltage Roentgen Rays and Other Forms of Therapy In Certain Benign Chronic Skin Diseases Baer, R. L., et al., J. Invest. Dermatol. 19:325, 1952

A follow-up study was made of 1107 patients treated 5 to 23 years previously by X-ray and other measures for acne vulgaris, eczema, psoriasis, and chronic lichenified dermatitis. Superficial X-ray therapy seemed to offer some advantage in bringing about permanent "cures." There was no evidence that superficial roentgen doses up to 2000 r produced any more scarring in acne than other therapeutic measures.

Clinical Clippings, January, 1953.



Texas Orthopaedic Association To Meet In Houston April 21

The annual meeting of the Texas Orthopaedic Association will be held in Houston April 21, 1958, in conjunction with the annual meeting of the Texas Medical Association, April 18-21.

The morning session will be in the Grecian Room of the Shamrock-Hilton Hotel and the afternoon session in the Shrine Hospital. A luncheon and business meeting will be held in the Jesse Jones Library Building of the Medical Center.

Officers of the Association are Dr. Margaret Watkins, Dallas, President; Dr. Duncan Mc-Keever, Houston, Vice-President; and Dr. B. C. Halley, Jr., Dallas, Secretary-Treasurer.

Guest Speaker

Guest speaker will be Dr. Allan F. Voshell of Baltimore, Maryland, Professor of Orthopaedic Surgery at the University of Maryland Medical School, He will speak on "Clinical Fractures Obtained from Anatomical Studies of the Knee."

A native of Providence, R. I., Dr. Voshell received his B. A. and M. D. from Johns Hopkins, where he served as House Officer, Resident

Orthopaedic Surgeon and Instructor in Orthopaedic Surgery. He was Instructor in Orthopaedic Surgery at the University of Virginia from 1921 to 1926 and Associate Professor from 1926 to 1931. He became Professor of Orthopaedic Surgery at the University of Maryland in 1931. At that time he also became Chief of the Orthopaedic Service of the University of Maryland and Baltimore City Hospitals and Director and Surgeon-in-Chief of the James Lawrence Kerman Hospital for Crippled Children.

Past President

Dr. Voshell is a Past President of the American Board of Orthopaedic Surgery and a former Vice-President of the American Academy of Orthopaedic Surgeons. In 1940 he received Honorable Mention from the American Academy of Orthopaedic Surgeons for an exhibit on internal derangements of the knee and in 1941 a Gold Medal from the Academy for an exhibit on mechanics of the ligaments and menisci of the knee joint.

The complete program follows:

TEXAS STATE ORTHOPAEDIC ASSOCIATION

April 21, 1958

SHAMROCK-HILTON HOTEL — GRECIAN ROOM

Houston

10:00 A.M.	Dr. H. E. Hipps	End Results of the Bohler Operation For Fracture of the
	Waco, Texas	Patella. (Slides).
10:20 A.M.	Dr. Paul Harrington	Spine Fixation in Paralytic Scoliosis.
	Houston, Texas	(x-rays only).
10:40 A.M.	Dr. Chas. F. Clayton	Fractures of the Distal End of the Radius.
	Fort Worth, Texas	(Slides).
11:00 A.M.	Dr. Allan F. Voshell	Clinical Fractures Obtained from Anatomical Studies of
	Baltimore, Maryland	the Knee. (30 minutes).
	QUESTIONS—	(10 minutes).
11:40 A.M.	Dr. Joseph Barnhart	A Discussion of the Orthopedic Aspects of Hyperpara-
	Houston, Texas	thyroidism.
12:00	ADJOURN	
12:30 P.M.	Luncheon and	Doctors' Club, Third Floor, Jesse Jones Library Building
	Business Meeting	Medical Center

AFTERNOON PROGRAM — SHRINE HOSPITAL

2:00 P.M. Dr. Louis J. Levy Transplant of Pectoris Major Muscle For Deltoid Paralysis. (Movie).

APRIL, 1958

2:20 P.M.	Drs. I. S. McReynolds and B. D. Burdeaux, Jr. Houston, Texas	Gluteus Maximus Tendonitis.
2:40 P.M.	Dr. Louis W. Breck El Paso, Texas	End Result Study of the Fred Thompson Hip Prosthesis. (Movie and Slides).
3:00 P.M.	Dr. Ruth Jackson Dallas, Texas	Cineradiography of the Cervical Spine During Intermittent Traction. (Movie).
3:20 P.M.	Dr. R. A. Murray Temple, Texas	Infections of the Spine
3:40 P.M.	Drs. Parrish & Andrews Houston, Texas	Complications and Sequela of Long Bone Osteotomies of the Lower Extremity.
4:00 P.M.	Dr. Joe Woodward Waco, Texas	Muscle Origin Release in Treatment of Sprengel's Deformity—A New Procedure. (Movie and Slides).

Dr. H. D. Garrett of El Paso Elected President of Texas District One Medical Association

Dr. H. D. Garrett of El Paso, a former Vice-President of District One of the Texas Medical Association, was elected President of District One at the organization's annual meeting in Pecos, Texas, February 11.

Other new officers are Dr. Alan Sherrod, Iraan, Texas, Vice-President; Dr. E. S. Crossett, El Paso, Secretary-Treasurer; and Dr. Gordon Black, El Paso, Secretary-Treasurer Elect. Dr. C. E. Oswalt of Fort Stockton was re-elected Councillor.

Retiring officers were Dr. W. A. Jones, El Paso, President, and Dr. William E. Lockhart, Jr., Alpine, Texas, Vice-President.

Fort Stockton

The 1959 meeting will be held in Fort Stockton. The date is to be announced.

Approximately 50 physicians attended the Pecos meeting to hear an outstanding program. Speakers were Drs. J. Leighton Green, Ward Evans, Gordon Black, Charles E. Webb, W. W. Wollmann, Gerald H. Jordan, Leo Villareal, Leigh L. Wilcox, Frank C. Golding, H. M. Gibson, Maurice P. Spearman, C. C. Boehler, all of El Paso, and Dr. Bruce Hay of Pecos. Panel discussions were held on the subjects of "Intestinal Obstruction" and "Antibiotic Therapy, Current Status".

Born in Bertram, Texas, Dr. Garrett was educated in Marlin, Texas, and received his B.A. from the University of Texas and his M.D. from

the University of Texas Medical Branch at Galveston.

Interned In El Paso

Dr. Garrett interned in El Paso City-County Hospital in 1941 and then did general practice in El Paso until 1945, when he began training in dermatology with Dr. Leslie M. Smith of El Paso as preceptor. His basic studies in Dermatology and Syphilology were taken at the Graduate School of Medicine of the University of Pennsylvania in 1947 and 1948.

Dr. Garrett is certified by the American Board of Dermatology and Syphilology and is a Fellow in the American Academy of Dermatology and Syphilology. He is a member of the Texas Dermatological Society and the Southwestern Dermatological Society. He is engaged in the practice of Dermatology as a partner with Dr. Leslie M. Smith.

Censor Member

Dr. Garrett is a member of the censor committee of the El Paso County Medical Society and is immediate past chairman of the Society's public relations committee.

The Woman's Auxiliary to the Texas Medical Association enjoyed a coffee, style show, met at luncheon with the physicians, and attended a program "In Tune with the Times". Mrs. Rufus Roberts of Pecos was hostess at a tea and Mrs. Harold Lindley of Pecos was hostess for a cocktail hour and buffet supper.

Western Railway Surgeons To Meet In August in Seattle

The annual meeting of Western Association of Railway Surgeons will be held in Seattle. Aug. 6-8. The time of the meeting will coincide with the Seafair Celebration in Seattle. An outstanding scientific program is in preparation along with arrangements for attending members to enjoy the Aqua Follies and the Gold Cup race which are features of the Seafair Celebration.

The fifty-fourth and most recent annual meeting was held last September in San Francisco. An outstanding scientific program was presented, embracing practically all of the problems which arise in the practice of railway medicine.

At this San Francisco meeting the Western Association of Railway Surgeons designated Southwestern Medicine as its official journal. It is anticipated that this alignment with Southwestern Medicine will be of great benefit to the Association, since it has been many years since an official publication has been available.

Annual Lecture

In the future the William Cummins Annual Lecture will be presented as a feature of the annual meeting as a memorial to Dr. Cummins who served as Secretary of the organization for many years.

The Western Association of Railway Surgeons is an association the purpose of which is to encourage the study, improve the practice and elevate the standards of railroad surgery and medicine. It

is also designed to stimulate and foster mutual help and friendship in the accomplishment of these ends.

The Pacific Association of Railway Surgeons was founded in 1903. This organization was very active and held annual meetings of high scientific value for many years. It was composed mostly of railway surgeons along the Pacific Coast and close by. In 1950 the name of the organization was changed to the Western Association of Railway Surgeons, with enlargement of the scope of the organization to include physicians and surgeons of the railroads operating west of Chicago within the United States, the railroads of Mexico, and the railroads of Canada from Winnipeg, Manitoba, to the Western Coast.

Scientific Meetings

Annual scientific meetings of three days duration are held usually in August or September. Since 1950, meetings have been in San Francisco, El Paso, Las Vegas, Seattle, Sun Valley, Salt Lake City and Pasadena.

The present officers of the Western Association of Railway Surgeons are: Dr. Bernard E. McConville, Seattle, President: Dr. John R. Winston, Chicago, First Vice President: Dr. Joe R. Gandy, Houston, Second Vice President: Dr. Harry Hund, San Rafael, Calif., Treasurer: Dr. Graham Owens, Kansas City, Secretary; Dr. Glenn F. Cushman, San Francisco, Chairman Executive Committee.

Dr. Andrew M. Babey of Las Cruces Elected President of Southwestern New Mexico Medical Society

Dr. Andrew M. Babey of Las Cruces, editor of the popular Aphorisms and Memorabilia in Southwestern Medicine for over six years, was elected President of the Southwestern New Mexico Society at its recent annual business meeting in Deming, N. M.

Dr. L. J. Whitaker of Deming was elected Vice-President. Dr. T. H. Klunder of Hatch, N. M., was re-elected Secretary-Treasurer. Retiring officers were Dr. William B. Cantrell, Truth or

Consequences, President; and Dr. C. L. Harris, Las Cruces, Vice-President.

Dr. Merle D. Thomas of El Paso used a very practical and easily understood approach to present the "Complications of Anesthesia".

Dr. Ziegler Honored Guest

Dr. Samuel R. Ziegler of Espanola, N. M., President of the New Mexico Medical Society, was the honored guest. He offered some pertinent comments on national health legislation, particularly the Forand Bill, and gave a brief summary of state health problems, welfare support and public relations techniques.

Ralph Marshall, Albuquerque, Executive Secretary for the New Mexico Medical Society, spoke on the State Medicare program.

Re-elected for another year were officers of the Society's Auxiliary as follows: Mrs. H. S. Cohen, Lordsburg, President; Mrs. Paul A. Feil, Deming, Vice-President; and Mrs. T. H. Klunder, Hatch, Secretary-Treasurer.

Born In Brooklyn

Dr. Babey was born in Brooklyn and received his B. A. from New York University and his M. D. from Harvard University. He took both his internship and residency at Bellevue Hospital in New York and did postgraduate work for one year in London in Guy's Hospital and London Hospital. He was an instructor for three years at the State University of New York Medical School.

He began the private practice of medicine in New York City in 1939, served for three years in the Navy emerging with the rank of lieutenant commander, and then resumed his practice in New York City. In 1950 he moved to Las Cruces, where he has since been located.

Dr. Babey is a Fellow in the American College of Physicians and is certified by the American Board of Internal Medicine, with certification in the sub-specialty of cardiology as well.

Next Meeting

The next meeting of the Society will be held in the Rio Mimbres Country Club in Deming on April 9, 1958, with the Deming group as hosts. Dr. Maynard S. Hart of El Paso will discuss experiences with and follow-up of 5000 cases of Papanicolaou smears. The dinner meeting will start with a social hour at 6:30 p.in.

The following schedule for lectures at the Fort Bayard Veterans Hospital in New Mexico was announced:

April 2, Dr. Oliver Stonington, Urologist, the University of Colorado Medical Center in Denver.

May 7, Dr. James Stephens, Assistant Professor of Neurology, University of Colorado Medical Center in Denver,

June 4, Dr. William H. Pickett, Clinical Assistant Professor of Surgery for the University of Texas Southwestern Medical School at Dallas.

Border Health Association To Meet in El Paso-Juarez

The annual meeting of the United States-Mexico Border Public Health Association will be held in the sister cities of Ciudad Juarez, Chihuahua, and El Paso, Texas, April 8-11, 1958. Head-quarters for the meeting in El Paso will be at the Cortez Hotel and in Juarez at the new health center "Dr. Luis Estavillo Munoz", which is situated on the first street facing the Rio Grande between the Santa Fe and Stanton Street international bridges.

Dr. Malcolm H. Merrill, Director of the State of California Department of Public Health at Berkeley, will speak on "Public Health Mission to Russia".

Subjects for discussions include diarrheal diseases, the malaria eradication campaign in Sonora and Baja California, recent advances in communicable diseases and chronic diseases.

Coming Meetings

Texas State Surgical Society, El Paso, Texas, April 5-8, 1958.

Southwestern New Mexico Medical Society, Rio Mimbres Country Club, Deming, N. M., Apr. 9, 1958.

Texas Medical Association, Annual Meeting, Houston, April 18-21, 1958. Annual Meeting of the Texas Orthopaedic Association will be held in conjunction with meeting of Texas Medical Association.

Fifth International Congress of Internal Medicine, Sheraton Hotel, Philadelphia, April 24-26, 1958.

Arizona Medical Association, Inc., Annual Meeting, Chandler, Ariz., April 30 - May 3, 1958.

New Mexico Medical Society, Annual Meeting, Albuquerque, N. M., May 14-16, 1958.

Western Association of Railway Surgeons, annual meeting, Seattle, Aug. 6-8, 1958.

International College of Surgeons, Western Regional meeting, The Riverside Hotel, Reno, Nevada, August 21-23, 1958. For information, write Dr. Leo D. Nannini, 190 Mill St., Reno.

American Fracture Association, annual meeting, Oklahoma City, Oct. 1-3, 1958.

Southwestern Medical Association, annual meeting, Tucson, Oct. 23-25, 1958.

ORIGINAL ARTICLES

The Petrographic Analysis of Urinary Calculi in This Area

By H. M. Gibson, Jr., M.D., & J. A. HANCOCK*, Ph.D., El Paso

More and more, it becomes apparent that a diagnosis of urinary calculus, is not truly a primary diagnosis. Calculi are usually secondary to something else, either local conditions or metabolic conditions. It, therefore, is of prime importance that accurate analysis of urinary calculi, be made, and yet, until the last decade, progress in this field has been woefully lacking.

Chemical methods of stone analysis, that are in general use today, stem directly from the work of Hammersten¹ in 1896. This is the very weak support that we have leaned on, all of these years, in an effort to determine what type of urinary calculi we are dealing with.

In the last decade, many investigators, realizing the tremendous need for a more accurate method of analysing urinary tract calculi, have gone into the field of mineralogy and x-ray. Some workers have worked out methods to differentiate stones fairly well by x-ray defraction.²

Others have used infra-red light. But, perhaps the most successful of all is the method of optical crystallographic study, advanced and advocated by Preen and Frondell;³ This method uses light from a polarized light microscope and gives us a very accurate representation of the calculus under examination.

Urinary Calculus

Knowing the constituents in a urinary calculus and their order in that structure, is extremely important. For example, some stones are laid down in acid urine. Notably, uric acid calculi. If a uric acid calculus is first formed as a nucleus and for some reason the patient develops infection, then a secondary deposit may be deposited around the uric acid nidus and form perhaps a very large stone.

Surgical removal of the stone, followed by the usual chemical analysis, would reveal only the greater mass of the stone, which would be composed of one of the salts, precipitated in infected

alkaline urine, such as, magnesium ammonium phosphate.

After removal of the stone, the effort then would be directed to prevent the formation of additional magnesium ammonium phosphate stones and we would be doomed to failure because the real culprit would have been the uric acid nucleus and the patient would, in all probability, continue to form stones, in spite of all our efforts, because, in trying to prevent magnesium ammonium phosphate stones, we would, actually, enhance the conditions for formation of a uric acid stone.

Method of Analysis

Essentially, the method advocated by Preen and Frondell³ utilizes the physical characteristics of the crystalline components of calculi rather than their chemical properties. In this, the ion-pairs of a formula can be identified together rather than individually as when determined chemically.

The petrographic microscope has been used by the geologist for some years in the identification of minerals and is a recognized tool in the field of crystallography. If a crystal of a pure substance is anisotrophic, it will rotate a plane of polarized light a specific amount and direction, according to the orientation of the crystal axes and the nature of the crystal.

This physical property along with the measurement of the indices of refraction by immersion allows identification of most crystalline substances.

A microscopic examination of a sectioned specimen gives information as to the presence of a nucleus, the homogeneity or heterogeneity of the calculus and also the manner by which it developed. A pure crystalline material, or one which grew radially, developed over a continuum and under the same environment, while an annular or band growth would indicate interrupted periods of growth accompanied or caused by a different environment. These factors and identifications can

^{*}Professor of Chemistry, Texas Western College.

be helpful in the attempt to prevent the reoccurrence of ureteral calculi.

Conclusions

During the first fourteen months of this service, we kept tract of all of our private cases and had them analysed by Dr. J. A. Hancock. The patients were all from southern New Mexico, the transpecos area of Texas and El Paso, Texas. A total of sixty stones were examined and the results of this analysis is published in the table below:

Results Obtained by Prien Type of Stone—	Local	Results
Calcium oxalate-pure	32.7%	38.3%
Calcium oxalate + apatite	34.30%	9.9%
Apatite-pure	3.4%	8.3%
$M_gNH_4PO_4$.	.30%	1.06℃
M _g NH ₄ PO ₄ + apatite	15.5%	15%
M _g NH ₄ PO ₄ + apatite +		
calcium oxalate	3.2%	1.06%
Calcium hydrogen phosphate		
dihydrate	1.9%	0
Uric Acid	5.896	23.2%
Cystine	2.9%	3.3%

It will be noticed that for the most part, the local results correspond very closely with the results of the analysis made by Dr. Prien in his locality. However, one wide difference is noted and that is in the incidence of uric acid calculi, with a

corresponding decrease in the calcium oxalate plus apatite stones.

The very high incidence of 23.2 percent as conpared to 5.8 percent is even more striking when this figure is broken down according to sex. It is found then, that thirty percent of all stones in males are uric acid calculi.

This is a tremendous percentage and may or may not hold up when a larger number of cases are examined over a longer period of time, however, it has always been our clinical impression that a large number of uric acid calculi are encountered in private practice, in this locality.

Considering the rather definite relation between uric acid calculi⁴ and diabetes, this is doubly important.

All cases will continue to be analysed and it is hoped that in another year or two, we will have a large enough series to publish more definite figures on this most interesting and what appears to be a different local problem.

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Mayo Chief of Medicine Visits Lovelace Clinic

Dr. Arthur M. Olsen, Professor of Medicine at the Graduate School of the University of Minnesota and one of the Chiefs of Medicine of the Mayo Clinic, was the first visiting physician pro tem at the newly established program of the Lovelace Foundation in Albuquerque, New Mexico, for Visiting Physicians and Surgeons pro tem, March 5, 6, and 7.

The program is intended to further the opportunities for graduate medical education in bringing to practicing physicians the latest advances of fundamental and clinical medicine and surgery.

Initial Management of Burns*

By GEORGE B. MARKLE IV, M.D., Carlsbad, N. M.

The management of burns must be considered as two topics rather than one: burn management under ideal circumstances in a hospital and burn management in mass disaster.

The former is of interest to the surgeon and the latter to all doctors, for surely where hundreds or thousands of burns are to be treated, the non-surgical specialist can not stand idly by while the surgeons and generalists are dropping from exhaustion.

Let us consider first how burns are now being treated under good conditions.

Burn Evaluation

First we must evaluate the extent of the burn along with assessment of other injuries.

This is important as those with less than 15 per cent burned areas, especially if second degree, and not affecting sight, respiration, or mobility, may not have to be hospitalized at all.

The mortality will be directly proportional to the extent and depth of the burns.

A practical method of estimating area is by the "Rule of Nine" which is accurate enough for our purposes.

The head and neck equals about nine per cent body area; each arm, another nine per cent. Each lower extremity equals twice nine, or 18 per cent. The torso equals 18 per cent anteriorily and 18 per cent posteriorly.

The genital area, a variable figure, is assigned one per cent to complete 100 per cent.

Fluid Replacement

In a fairly extensive burn it is best to begin replacement of fluids at once, even before local treatment is started.

Plasma or dextran might be the best to start with if shock is expected. Little blood is needed at first.

A plastic tube in a vein is wise if vein trouble is expected.

Today, many feel that the Evans formula for the replacement of fluids is not ideal, and modifications have been made.

Artz and his group advocate the following electrolyte replacement for the first 24 hours: 1.5 cc electrolyte (usually Ringer Lactate solution) times the weight in kilograms, times the percentage of

body burn, up to a maximum of 50 per cent.

If the area is over 50 per cent they use no more than 50 per cent in their computation. Even so total fluids may be 9000 cc or more.

Colloid Replacement

They estimate the colloid replacement as one third of this, or .5 cc per kilogram times the percentage of burn. In addition about 200 cc of water. either by mouth if tolerated, or a five per cent glucose in water intravenously, must be given each day for insensible loss, and in order to produce urine.

One will note that the electrolyte and colloid merely replace the huge amounts lost in the extracellular spaces as edema. The amount lost from surface ooze is much less.

Crews states that 85 per cent of the total edema forms in the first hour. This is what produces shock. Unlike hemorrhagic shock, electrolyte here is more important than blood, plasma or other colloid. The need for rapid infusion can be appreciated. Half the day's total fluid should be given in the first eight hours.

Second Day

The second day edema formation is less, and the electrolyte and colloid requirements are about half. The need for two liters of water remains. Subsequent electrolyte and colloid demand will be much less, and must be individualized.

Variations in requirements exist. Elderly patients, for example, should perhaps receive less sodium. Soroff et al. states that a plasma level of 130 to 135 milliequivalents is a good level, and that a value of 145 or over indicates intracellular dehydration.

A catheter in the bladder is an excellent way to gauge hydration and even shock. A urine output of 30 to 50 cc per hour is ideal. Less means shock or dehydration. Renal shutdown is rare if shock is not prolonged. More output is unnecessary.

Second Degree

A purely second degree burn case needs little or no blood at first, plasma or dextran doing as well. Deeper burns may be associated with hemolysis and require blood. There will be time for laboratory evaluation later on.

^{*}Presented at the Southern New Mexico Clinical Meeting, Carlsbad, N.M., December 7, 1957.

Antibiotics are indicated in all but the most minor cases. Penicillin with or without Streptomycin may work, but some geographical areas have a lot of resistant organisms which will require other drugs.

Cultures of wounds and blood, if signs of septicemia, can guide us to the appropriate antibiotic. Tetanus toxoid or antitoxin must not be forgotten.

Burns about the face warn us that tracheotomy may be needed.

Local Treatment

As for local treatment, cleansing with water and soap or phisohex, followed by removal of loose dead skin fragments is done without anesthesia, under the influence, perhaps, of morphine in moderate dosage.

Some open and debride blisters even if intact. I prefer to leave them alone as long as they are not open and grossly infected.

Stripping off all the epidermis that can be pulled off with forceps seems to me to delay healing of second degree burns.

Open Air Treatment

One of the advantages of open air treatment is that areas can be watched and debrided as necessary.

Other advantages are ease of management, economy of supplies and personnel, less septicemia, evaporation and radiation of heat are unimpeded, better drainage of any infected areas, and that fewer areas convert from second degree to third degree as occurs when the struggling little islands of epithelium are bathed in infected secretions.

Furthermore repeated anesthesias, usually necessary for dressing changes, are eliminated.

Most burns can be treated by the open method. Bed sheets need not be sterile as a dry surface, which develops in 48 hours, will not grow bacteria.

Sterile dressings may be placed under burned parts and, if burns are both anterior and posterior, a Stryker frame can be used so as to air dry all sides.

Closed Dressings

If closed dressings are to be used, as in ambulatory patients, I feel it makes little difference what sort of bland ointment, if any, is applied at first.

The first dressing will be soaked and it will all come off.

A large dry fine mesh bulky dressing, as produced by the government for disasters, is fine.

The dryer the wound, the less the infection, is a general observation.

The local care, as well as fluid and nutritional needs, grafting, physiotherapy, etc., needed subsequent to the first few days following burns, will not be dealt with in this paper.

Formidable Problem

Now let us consider for a moment the formidable problem of treating burns in a mass disaster such as might occur in atomic warfare or a huge oil fire.

One can't be complacent because one doesn't live in a strategic target or near oil storage tanks. Where will the mass casualties be evacuated, if not to you?

Hospitals can care for some of these unfortunate patients, but, in a great disaster, schools, and church annex facilities may have to be utilized. The main requirement will be space, shelter, warmth, and kitchens.

One story buildings are best as we can't rely on elevators. Large numbers of army stretchers for use as cots are necessary, as well as sheets, blankets, and dressings.

There will be no charts, a tag will substitute and will go with the patient without loss or confusion.

Sorting and Evaluation

Sorting and evaluation (triage) will of necessity be brief but must be as accurate as possible. The most experienced surgeons available should have this job.

This is no time to tie up our best men in an operating room, spending hours on tendon surgery and intramedulary fixation of fractures.

Those with burns of 20 to 40 or 50 percent should have first treatment under these imperfect conditions; a burn of greater extent will likely prove fatal, and if 80 percent or more is burned, the patient should be given morphine and left in a quiet area as comfortable as possible.

Those with less than 20 percent burn can be treated later, or perhaps some volunteer can be found to help them dress themselves with whatever is available. Lay personnel will have to do much of the work of nurses and orderlies.

Dressings Indicated

If further evacuation is expected, dressings are indicated, but, if unavailable at first, the open method can later be changed to a closed technique.

If definitive treatment must be carried out at this location, and if the temperature of the space can be controlled, the open treatment is the method of choice.

Cradles or tents can be improvised from cut out cardboard cartons or string and sticks.

Brown and Glover suggest a simple method of preparing closed dressings by dipping sterile gauze or cloth in a pan of 30 percent amber vaseline and 70 percent heavy mineral oil.

Such strips are applied vertically, not around the body or an extremity. Any type of dry dressing

is applied over this.

Whether open or closed methods are used little cleansing or debriding is possible at this stage.

Oral Solution

Where intravenous solutions are unavailable or in short supply, an oral solution of one teaspoonful of salt and one half teaspoonful of sodium bicarbonate in a liter of water makes a fair substitute. It must be taken in large quantities.

Catheters can be used to great advantage to check on hydration and shock. A volunteer with a bucket can hourly pass down the long line, emptying the urine containers after measuring output. He would call attention to any case having less

than 30 cc per hour and the ward doctor or nurse would do what was possible to increase the fluid intake, whether by mouth or by vein.

Antibiotics Recommended

Antibiotics and tetanus prophylaxis should be used if at all possible.

Again we must not forget that a tracheotomy may be lifesaving for burns about the face, especially where there are signs of respiratory tract burn.

An attitude of hope and optimism in the care of the burned patient, coupled with energy, will produce sometimes surprising recoveries, whether under disaster or optimum conditions.

The pessimistic or defeatist doctor will have results that confirm his pessimism.

911 N. Canal St.

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MONTHLY CLINICAL PATHOLOGICAL CONFERENCE EL PASO GENERAL HOSPITAL

February 20, 1958

F. P. Bornstein, M. D.—Editor—Case #966 Presentation of case by J. C. Dotson, M. D.

History—Dr. Nathan Kleban:

Abdominal pain brought a 38-year-old unemployed, divorced, Latin-American man to the hospital on November 14, 1957.

Since 1935, there had been steady intake of alcohol, with periods of not eating. Six months before admission, the patient began to vomit when he got up in the morning. Over a three-month period, there was a 25-pound loss in weight. Eight days before admission, he began having two or three liquid stools each day. Blood was passed by rectum two days prior to entry. The abdominal pain which prompted his coming to the hospital was not further described.

Physical Examination:

Temperature. 99.6. Pulse, 110. Respirations, 28. Blood pressure, 110/70. The patient was jaundiced and had poor muscle tone. Rales were present at both lung bases. The liver edge was thought to be three centimeters below the right costal margin. Ascites was present.

Hospital Course:

Temperature rose to 102 on the second day, with only low grade fever during the remainder of the first ten days, and no elevation thereafter. Abdominal pain required meperidine.

There were three large, yellow-brown and yellowgreen stools on the second day, for which he was given Cremomycin and parenteral fluids. On the fifth day, there was a liquid reddish brown stool; later, small amounts of dark liquid blood.

The next day, there was considerable loss of dark liquid and clotted blood by rectum, which later became bright red in hue.

Fourteen pints of whole blood and 1-arterenol were given through venous cut-down, for shock. A bleeding point was not found by sigmoidoscopy. Test for occult blood, on fluid obtained through a gastric suction tube, was weakly positive.

Abdomen Opened

With blood being lost from the gastro-intestinal tract faster than it could be replaced, the abdomen was opened on the seventh day. Ascites and a pebbly, shrunken liver were found. Three lesions were encountered in the distal ileum and cecum.

These consisted of areas of induration, a whit-

ish serosal reaction, and what seemed to be partially circumferential ulcers.

A terminal ileo-ascending colectomy, with sideto-side ileo-transverse colostomy was done. The patient tolerated the procedure well.

Pathological diagnosis of the ulcerative lesions was tuberculosis of the small intestine.

Following surgery, there was no recurrence of rapid blood loss, although some red and black blood continued to be expelled through the rectum and blood was obtained through the gastric suction tube during the last several days of the patient's

Vitamins, including K, oxide, parenteral calories and electrolytes; chloramphenicol, tetracycline, steroids and an additional four pints of blood were given.

There was increasing confusion, deepening jaundice, hypothermia and hypotension. Large amounts of blood from the gastric tube, coma, labored breathing, and an additional drop in blood pressure preceded death on December 4, 1957.

Laboratory Findings:

X-ray—11/15/57—Radiographic examination of the chest reveals a moderately advanced fibroid lesion involving the right upper lung field. Sputum studies are recommended for further evaluation. The heart and mediastinal structures appear natural. The bony thorax and diaphragm and trachea occupy their usual positions. Conclusions: Moderately advanced fibroid lesion. The degree of activity cannot be evaluated on a single examination.

X-ray—11/29/57—Portable examination of the abdomen reveals gas distended loops of both large and small bowel, consistent with an adynamic ileus. There are hypertrophic changes in the visualized lumbar spine. Conclusions: Findings consistent with adynamic ileus.

Blood Counts—12/15/57—Hb. 9.8 gms. WBC 4,900, Stab. 3 Segs 78, Lymphs. 13, Monos. 6, Ht. 32 percent. 11/18/57—Hb. 8.5 gms. WBC 6,150, Ht. 33 per cent, Segs. 62, Lymphs 35, Monos. 3. 11/19/57—Hb. 5.7 gms. Ht. 23 vol. per cent. 11/19/57—Hb. 4.8 gms, RBC 2,240,000, Coag. time 3' 50", bleeding time 1' 30". Platelets 96,320, Prothrombin time 90 per cent activity time, Ht. 16 per cent. 11/20/57—Hb. 11.11 gms. WBC 5,150, Stabs. 10, Segs. 55, Lymphs. 32. Monos. 3, Ht. 35 vol. per cent. 11/20/57—Hb. 12.0 gms. Ht. 40 vol. per cent. 11/21/57—Hb. 12.4 gms. Ht. 41 vol. per cent. 11/28/57—Hb. 10.7 gms. Ht. 38 vol. per cent. 11/26/57—Hb. 12.9 gms. Ht. 48 per cent—WBC 15,700, Stabs. 3, Segs. 86, Lymphs. 8, Monos. 3. 11/30/57—Hb. 12.4 gms. Ht. 45 per cent—11/30/57—Hb. 12.0 gms. Ht. 43 per cent. 12/4/57—Hb. 10.7 gms. Ht. 36 vol. per cent.

Urinalyses: 11/15/57—Slightly cloudy, S. G. 1.017—acid, sugar and albumin neg. 2-3 ep. cells/HP, 3-5 sperm. /HP—profuse, motile bacteria, Ca. Ox. crystals. 11/21/57—Spec. Gravity only, 1.014.

Miscellaneous: 11/15/57—BSP—34.0 per cent retention in 45 minutes. 11/15/57—Thymol turbidity—10.0 units. 11/15/57—Ceph. Floc—24 hours, 2+ 48 hours, 3+. 11/18/57—PPD #1—neg. 11/18/57—PPD #2—neg. Cocciodiodin—neg. Histoplasmin—neg. 11/19/57—Gastric fluid—occult blood—weakly positive. 11/20/57—Typhoid O, Typhoid H, Paratyphoid A, Paratyphoid B, Brucella abortus, Proteus Ox 19—agglutinations all negative.

Blood Chemistry: 11/15/57—Alk. Phosphatase, 11.5 BU. Total protein 6.8 gm. percent. Albumin 3.6 gm. percent. Globulin-3.2 gm. percent. A/G -1.2/1. Urea nitrogen-8.5 mg. percent. Urea-18.2 mg percent Van den Bergh-direct-1.75 mg percent, indirect 3.0 mg percent. 11/20/57— CO₂ capacity—53.4 vol. percent (24 meq/1). Chlorides—445 mg percent (124.5 meg/1 as cl). Potassium—2.7 meq/1. Sodium—132 meq/1. 11/21/57—Total protein—4.5 mg percent. Urea nitrogen—18.7 mg percent, 11/22/57—Chlorides —95. Potassium—3.9 Sodium—117. 11/27/57— Total protein—5.2 gm percent. Albumin—3.3. Globulin-1.9 A/G-1.74/1. Van den Berghdirect, 9.5 mg percent indirect, 12.0 mg percent. 11/29/57—Sodium—137 meq/1. Potassium—6.9 meq/1. 12/4/57—Chlorides—124.5 meq/1. NPN —47 meq. percent. Potassium—6.9 meq/1. Sodium 120. Urea nitrogen-16.0 mg percent, Van den Bergh direct, 7.25 mg percent, indirect 11.25 mg percent.

Feces: 11/18/57—Strongly positive for occult blood, very numerous cysts of giardia lamblia found. 11/18/57—Same as above. 11/20/57—Culture—no growth in 72 hours.

Differential Diagnosis-Dr. J. C. Dotson:

I accept the pathological diagnosis of tuberculosis of the intestine. I saw the pictures and they seemed quite typical. I would like, briefly, to recapitulate the history for you. On entering the hospital, the patient was an acutely and chronically ill 38-year-old man, who entered with ascites, jaundice, and a recent history of diarrhea, which had become bloody two days before admission.

He had also suffered a 25-pound weight loss associated with vomiting. The precipitating cause of admission was, apparently, some sort of abdominal pain, which was not very well described.

On the physical examination, in addition to the jaundice and ascites, we demonstrated an elevated pulse rate, poor muscle tone, basilar rales, and a palpable liver.

Pre-Operative Course

His pre-operative course was marked by low grade fever. He had large, semi-formed stools, which became dark brown on the fifth day, and then frankly bloody, turning bright red shortly before operation.

The bleeding at the time progressed to such an extent that his blood pressure had been lowered to shock level, and it was at this time that I first saw the patient.

Ten pints of blood had been used in the 36 to 48 hours before surgery, which was done on the sixth hospital day. The bleeding appeared to be coming from the distal bowel.

Even aside from the bleeding proper, he was in extremely poor condition. Therefore, I felt that some temporizing was indicated. We did a sigmoidoscopy in bed, and found no bleeding point, which argued somewhat against ulcerative colitis.

No Stool Culture

A stool culture had not been done to determine the presence of typhoid bacilli. The agglutination reactions had not been taken until the day of operation.

These, incidentally, were negative. Giardia lamblia cysts were found, but no amoeba. These examinations were done two days prior to surgery.

Chemistries taken on admission confirm the clinical impression of severe cirrhosis with impending liver failure as manifested by rise in the bilirubin.

The serum proteins, however, were adequate.

The kidney function, judged by the urea nitrogen level and the urine output, appeared to be adequate, although specific gravity was determined on only two occasions, but was perhaps somewhat lower than might be expected on the basis of his state of dehydration which was also somewhat uncertain.

The fibrotic lesion, which had been shown in the right upper lung, was described as moderately advanced and, we thought, provided the clue to the findings at operation which were three or four partially circumferential ulcers with serosal reaction but no evidence of peritonitis at that time.

There was a liter or so of ascitic fluid and there were some old adhesions between the liver and the anterior abdominal wall, but these were old and otherwise unexplained.

The anastomosis proceeded smoothly. Although the operating time was somewhat longer than it should have been, with the help of transfusions (1000 ccs., I believe), his blood pressure was fairly well supported during the procedure, and his postoperative recovery was very smooth.

One or two units of blood were given the day following surgery, and, later on, he bled for two weeks, and in addition two pints of blood were given toward the end.

The bleeding at this time had been recurrent but mild, and did not appear to be a problem. His hemoglobin was easily maintained by the transfusions, as mentioned.

In addition he had, I think, a fairly thorough therapeutic regimen, including Vitamin K as well as other vitamins, parenteral glucose, electrolytes, protein, hydrolysates, steroids and antibiotics.

Urine Output

The urine output the day of surgery was only 200 cc. but, following that, ranged between 650 and 1000 cc., which may or may not have been adequate. On the 11th post operative day, he had a relative diuresis of over 2000 cc.

The BUN did rise somewhat, but not alarmingly, probably due to the absorption of hemoglobin or break-down products.

The electrolytes taken on the date of surgery revealed a low potassium, slight reduction in sodium, and markedly elevated chloride.

I wasn't quite clear on this point until I consulted with Dr. Kleban.

There seemed to be some discrepancy, but apparently the chloride was elevated, 124 meq/1, which is precisely the value obtained some ten days later.

If we assume that he did have a chloride elevation, it is almost always associated with oversalinization, of which there was no evidence on the history.

The only explanation we had for excessive chloride in the presence of an ascites was the assumption that he lost enough cations through his diarrhea. Later on, there probably was some reason for finding a high chloride, but not at that time. Two days post operative, his chloride and potassium were in line, but his sodium was somewhat dangerously low.

I think several causes probably played a part. First of all, there was the usual postoperative sodium concentration deficit as opposed to the true depletion which is brought about by intracellular migration.

Secondly, several influences were operating in this chronically debilitated patient which might have led to his hyponatremia—influences which are somewhat hard for me to understand, but have in the main to do apparently with water balance.

Sodium Losses

Then there were the sodium and water loss associated with his diarrhea and his hemorrhage, and also sodium losses in the ascitic fluid. This is understandable enough. However, this hyponatremia is seldom symptomatic.

You will notice that the sodium descended to something like 117 meq/1, which ordinarily will produce symptoms. Vigorous efforts should be made to correct the situation.

Eventually, it was recognized and treated, and, perhaps, somewhat over-treated. During the sixth and seventh postoperative days, he received something like 50 grams of sodium chloride through mistake.

He survived this well enough, and a couple of days later his sodium was back in line again. This time his chlorides were way up, and I think then the discrepancy probably represented an essentially low sodium level which is more homeostatic and physiological than pathological.

No Clear-Cut Losses

In other words, it certainly was not due to any clear-cut extra cellular losses except for the absence of the ascitic fluid. Interestingly enough, the symptomatology produced by abnormalities of electrolytes are often much the same.

High potassium with low sodium, even a high chloride, pretty much correspond with the symptoms which we find with various other types of depletion, several of which he had, mainly due to his hemorrhage and mainly due to his malnutrition.

The elevation of the potassium (very high—6.90 on two separate occasions) without oliguria is very rare. It may be that a relative oliguria did exist here. His tubular resorptive capacities were really not known and not very much is known about his kidneys.

Certainly the administration of cortical steroids didn't seem to do much to influence his electrolyte levels. He had quite a bit in the way of cortisone in the last week or so and yet there was no increased secretion of potassium.

Incidentially, these high potassium levels were not checked out with an EKG. They were not treated with insulin or testosterone. It is quite possible that the high potassium level may have influenced the development of his marked mental confusion and his weakened and peripheral vascular collapse.

There is also the possibility of a transfusion reaction, masked perhaps by his jaundice with the ascites and the release of abnormal amounts of potassium into the blood.

Recurrent Bleeding

To explain the recurrent bleeding otherwise than by persistent ulcers left behind or small ones which were not clinically recognizable, one could assume that there were abnormalities of the clotting mechanism.

No proof, pro or con, was obtained. Stress ulcers, perhaps aggravated by the administration of corticoids, is one possibility.

This, like myocardial infarction or pulmonary embolism, is always a possibility.

Other causes of the bleeding, such as nasal gastric tube, or multiple, perhaps septic, venous thrombi in the intestine, and all sorts of things, could be mentioned, but can't be proved.

He had two normal white counts before, and on the seventh postoperative day it became elevated to 15,000, with a marked shift to the left, with 88 percent segmented forms.

Superimposed Infection

This gave the appearance of a superimposed infection. Since there were few, if any, localizing signs of it, I also am inclined to believe like Dr. McVaugh that there was a peritonitis.

I didn't have that interpretation of the films at the time; it was described as an ileus. The widening of the space between the loops, indicative of fluid, didn't appear to be too marked.

The patient was passing stools, and he had bowel sounds, so we know that it wasn't an ileus, but it suggested that he did have some adherent loops of bowel, perhaps on the basis of peritonitis.

The lack of elevation of temperature to indicate an infection is not surprising, particularly if it is of a tuberculous nature, and particularly if the patient is on the verge of a cardiovascular collapse.

There was a report, I think somewhat incidental, of many motile bacteria in the urine. I

don't think that had too much to do with the main problem.

Summary

In summary, then, we have an acutely and chronically ill cirrhotic patient who entered with signs of impending liver failure complicated by a mysterious hemorrhage from what we think proved to be tuberculous ulcerations of the lower small bowel and cecum.

His immediate post-operative recovery was fairly satisfactory, but he continued to lose blood in relatively small amounts, and there were problems of electrolyte management.

There were hypotension, recurrent chills, and increasing liver malfunction, as evidenced clinically and by laboratory studies.

A contributing and final cause of death, in addition to hyperkalemia, was apparently an infection, possibly a tuberculous peritonitis.

I forgot to say that I believe there was some note in the chart about cardiac irregularities. We did not do an electrocardiogram. Cardia irregularities, I believe, can be found with a high potassium level, and for that reason I think it was probably not important.

Dr. Bornstein: On what basis did you make the diagnosis of cirrhosis of the liver?

Dr. Dotson: I saw the liver at operation and it was a small, shrunken, pebbly, brownish, not grey, liver. It looked pretty typical.

Dr. James McNeil: Did the patient receive postoperatively any anti-tuberculous drugs?

Dr. Dotson: He was on chloromycetin, but that was all. He never had any streptomycin.

Dr. W. R. Gaddis: Was the appearance of the liver such that it justified the diagnosis of acute and sub-acute yellow atrophy?

Dr. Dotson: No, it looked chronically shrunken. I don't know whether I have ever seen an acute yellow atrophy in a liver patient, or in an autopsy specimen. Perhaps Dr Bornstein can tell us the difference.

Dr. Antonio Dow: Were you satisfied at surgery that the bleeding was from these ulcers of the ileum?

Dr. Dotson: Ileum and cecum. We went through the entire GI tract and were unable to find any other source of bleeding and, post-operatively, his bleeding did largely cease. As a matter of fact, he had some stools that contained simply old blood. It wasn't until about the fourth or fifth day, I think, that he passed additional small amounts of old blood.

Dr. Dow: Well, it says here that large amounts of blood were obtained from the gastric tube just before he died.

Dr. Dotson: Pre-operatively, we were unable to get any positive blood in the stomach contents.

Dr. McNeil: Was any attempt made to demonstrate esophageal varices by X-ray?

Dr. Dotson: No. When I first saw him, he had a blood pressure of 60/30. I simply told them to get a silk stocking tube and have it ready, but, as the bleeding got brighter and brighter, it seemed fairly obvious that it wasn't coming from the esophagus.

Dr. Jack Postlewaite: One is impressed with the multiplicity of diagnoses that apparently could be given in a case like this. Many organs are involved, but one thing I would like to point out is anergic tuberculosis.

We will assume that the pathologist knows tuberculosis by having a piece of tissue which is characteristic of the disease, but we must also realize that first and second strength tuberculins are negative, and, therefore, you are dealing with presumed anergic disease.

He was critically ill. Therefore, he could have been so-called skin negative and still have had active extensive disease due to tuberculosis.

Other causes of anergic tuberculosis may occur, and they are incorporated in such weird diagnoses as Boeck's sarcoidosis, and some of the other collagen-like problems.

Cat Out of Bag

I am afraid I heard the cat get out of the bag, so I will have to say something and look like I understand the whole case.

But it is true that long term liver disease has an unusual terminal event, which looks like hobnail disease but is actually a malignant degeneration of a cirrhotic liver.

If this had metastasized to the peritoneum and peritonitis had occurred, I doubt whether it would escape the notice of the operator, because there would be other evidence of metastasis locally.

The hepatoma is more apt to metastasize to the pulmonary bed and, occasionally, to the central nervous system, rather than into the abdominal peritoneum.

Fluid Balance

One other thing occurred to me and that is the discussion of fluid balance which I think is so important here. The terminal event of failure, hypotention, and hyperkalemia, was preceded by so-called hypokalemic disease, possibly alkalosis.

This uncompensated problem is usually brought

on by something we do mechanically to a patient such as intubation, or such as some fluid loss through the biliary tree—the T-tube for example. It is usually a complication of therapy, whereas hypokalemic acidosis is the metabolic equivalent and must be treated in an entirely different manner.

The terminal event, I presume, could be classified as a fluid type of destruction of the body processes, fluid imbalance, electrolyte imbalance, and could, therefore, be classified as a hepatorenal syndrome.

Whatever it is, these shifts may be incompatible with heart function, and they die respiratory cardiac deaths.

Clinical Diagnoses: Intestinal hemorrhages, cause undetermined. Tuberculous ulcers. Hepatic failure.

Dr. Dotson's Diagnoses: Cirrhosis of the liver. Pulmonary and intestinal tuberculosis. Secondary gastro-intestinal hemorrhage from tuberculous ulcers. Hyponatremia, Hyperkalemia. Tuberculous peritonitis.

Pathological Diagnoses: Acute gastric hemorrhage with mucosal erosion. Sub-acute hepatitis. Inactive apical tuberculosis, bilateral. Generalized icterus with bleeding tendency. Surgical absence of the lower ileum. Tuberculous ulcers of the ileum, surgically removed.

Pathological Discussion—Dr. Bornstein:

On autopsy, we found the body of a 35-yearold, emaciated man. The body was slightly icteric. A well healed, fairly recent, post-operative wound ran in the longitudinal direction for about 13 cm, near the midline.

The peritoneum was jaundiced, hyperemic and covered with fibrous tags which extended from the peritoneum to the intestine. The peritoneal cavity contained about 2000 cc. of straw colored fluid.

Both pleural cavities were partially obliterated by fibrous adhesions. Each contained about 300 cc. of straw colored fluid. Examination of the organs revealed the following abnormalities.

Indurated Areas

In the apices of both lungs, there were indurated areas of greyish-white tissue with some caseation necrosis. Histologically, they showed active tuberculosis which correlates with the histological findings in the small intestine.

The liver weighed 1600 grams. The superior surface of the liver capsule showed numerous hemorrhagic fibrous tags. The liver was pale yellow in color.

It cut with markedly increased resistance. The cut surface showed homogenous yellow liver tissue with the pattern obscured. The biliary system was patent.

Multiple sections were taken from various areas of the liver for microscopic study which showed a picture of total disorganization of the structure.

The liver lobes have broken down into small fragments of islands of liver tissue. These islands are of two types—first, slowly degenerating liver tissue.

Various Stages

In these areas, the cytoplasm shows various stages of granularity and vacuolization and occasional outright necrosis. In a few places, regenerating liver tissue is noted. This, however, is fairly rare.

Between the liver tissue, one sees intensive proliferation of inflammatory tissue, fibroblasta, lymphocytes, some scar tissue, and some biliary canaliculi.

The picture differs from real cirrhosis in several important aspects.

First, an over-all lobular pattern with central veins is preserved.

Second, the break-down of liver tissue is uniform and the small fragments are fairly uniform in size.

Third, the necrotizing and inflammatory elements present dominate, while the reparatory elements appear to be secondary in character.

The most remarkable feature is that the entire liver appears to be uniformly affected.

Bloody Material

The esophagus, on opening, contained bloody material. The mucosa was intact. The stomach was markedly dilated and filled with freshly clotted blood.

After the blood was removed, one saw several flat erosions in the gastric mucosa which evidently represented the source of bleeding.

The small intestine was filled with clotted blood and was free of ulcers. There was a fresh suture at the ileo-cecal junction where the small intestine had been resected previously.

The suture was in good condition. The large bowel was free of ulcers.

From these findings, it appears that this man died of a diffuse gastric hemorrhage of a type frequently associated with hepatic failure.

It is intersting to note that the hemorrhage continued after the removal of the tuberculous ulcers.

Tuberculous Ulcers

When I received the tuberculous ulcers after surgery, I was somewhat baffled and checked the literature. It seems that fatal hemorrhages from tuberculous ulcers are unheard of and, therefore, it is my feeling that they represent an incidental finding and are not responsible for the hemorrhage of this patient.

As to the nature of the liver disease, this represents a far advanced stage of hepatitis with hepatic failure.

Such a hepatitis might, by regeneration and healing, end up as a fairly normal liver, and also may proceed and produce, later on, a cirrhosis of the liver.

However, this stage had not been reached in this patient. We still have the complete normal architecture of the liver with a free blood flow from the portal into the general venous system.

Therefore, we cannot expect any esophageal varices and can rule out eosphageal varices as the source of hemorrhage. It also explains the ascites on the basis of hepatic functional failure.

Dr. Dow: Do you suggest that he oozed all through the intestine?

Dr. Bornstein: He bled mainly in the stomach. There were no varices or specific bleeding points.

Dr. McNeill: Isn't it unusual, in hepatitis, to have such excessive hemorrhage in one organ and no bleeding in any other organs?

Dr. Bornstein: That is unusual. You usually find hemorrhage in other organs, subcutaneous hemorrhages. But he did not bleed from the sutures; he did not bleed from a varicose vein; he had a diffuse hemorrhage all over, which I could not locate specifically.

Dr. Dow: It is hard to believe that he was oozing all over. I believe that he had one specific bleeding point.

Dr. Bornstein: I took a lot of sections to find the specific bleeding point, but I was unable to do so.

Dr. Gaddis: The situation here is one that brings to mind another that we have seen before, following cortical steroid therapy. You will find bleeding from the gastric mucosa, without having a single bleeding point demonstrated.

I think it was my unfortunate task to discuss such a case last year in this very hospital: and you shouldn't be too surprised to have another patient on just the same order.

Once we proceed to use cortical steroids as part of our therapeutic armamentarium and attempt to do something *for* a patient, we sometimes do something *to* them.

I don't think you can explain it on the basis of a single bleeding point in spite of the fact that everybody else, including myself, would like to see one.

Dr. Bornstein: I think that your idea that the cortical steroids increase the bleeding tendency here is a very good one.

Dr. Dotson: What do you think about the original hemorrhage before the steroid therapy?

Dr. Bornstein: I don't know. Usually if you get an ulcer, like a real peptic ulcer, you can see a really nice artery spurting out blood. Here, you have common run-of-the-mill tuberculous intestinal ulcers, which you see dozens of times, and I don't know which one caused the beeding.

Dr. Dow: Was there a hyperemic, bloody mucosa?

Dr. Bornstein: No, there wasn't. He was bled out.

Dr. Dow: I can't believe he oozed all through the stomach.

Dr. Bornstein: Well, the stomach was full of blood.

Dr. Licon: You dissected the body. You reviewed all the facts. You still don't know what the hell went on.

Dr. Bornstein: That is usually the case.

Dr. Dow: Were there esophageal varices?

Dr. Bornstein: No.

Dr. Dow: Esophageal varices, when they are collapsed, are hard to find.

Dr. Bornstein: There were some flat, small erosions in the mucosa of the stomach, which were just good enough for the pathologist to be happy to find something tangible. I don't think you can bleed to death from a few small, superficial erosions. I didn't want to bring them in, because I didn't think they were relevant.

Dr. Kleban: You doubt seriously that this man bled from the tuberculous ulcers, and yet he was admitted to the hospital with a hemoglobin of five grams.

Dr. Bornstein: After the tuberculous ulcers were removed, he kept on bleeding just the same.

Dr. Kleban: I believe it was something else.

Dr. Bornstein: How do you know that it wasn't the same as before?

Dr. Kleban: Because he had no blood in his

stomach before. He hemorrhaged to death on the day of death.

Dr. Bornstein: Then you postulate two mechanisms; in the first case, he bled from tuberculous ulcers; and in the second case, he bled from something else? It is possible. However, I am inclined, from the natural history of tuberculous ulcers, to think that the same mechanism prevailed both times, and that the tuberculous ulcers were incidental. But, we have no proof.

Dr. Kleban: I don't think one is justified in saying that the cause of the fatal hemorrhage in this patient was due to cortical steroids in the absence of proof for the statement.

This man was an alcoholic, and alcoholics have gastritis and esophagitis.

Now we all see such individuals, true. Possibly they don't bleed rapidly and acutely, but they can bleed severely from such things as irritation due to aspirin.

They have perfectly normal stomach linings, but they bleed on surgery if they are subjected to exploratory laporatomy.

I submit that it is entirely feasible that this man bled fatally as a result of gastritis and esophagitis, and all one can say is that a definite, specific bleeding point was not found on autopsy.

Dr. Bornstein: As to the question of esophageal varices, the man did not have a real cirrhosis of the liver. You cannot develop esophageal varices with bleeding points before you have a real interference with the portal vein system on a structural basis. This, the man did not have.

In summary, then, we can say the man had a hepatitis. The man had tuberculous ulcers, and died of intestinal hemorrhage. The following possibilities exist, if we assume that the autopsy findings are correct, and that there was no specific bleeding point.

The hemorrhages before the operation may have been due to the tuberculous ulcers, and the fatal hemorrhage may have had a different etiology. Or, we can assume that the tuberculous ulcers were incidental and that the etiology of the bleeding was the same in both instances.

As far as the etiology of the bleeding is concerned, three possibilities exist:

A—Severe liver damage.

B—Cortical steroid therapy.

C—Chronic gastritis and esophagitis.

It is my personal feeling that the main cause of the bleeding is the damage cause by the hepatitis, but there is no absolute proof of it.

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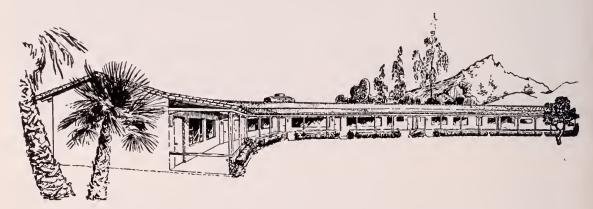
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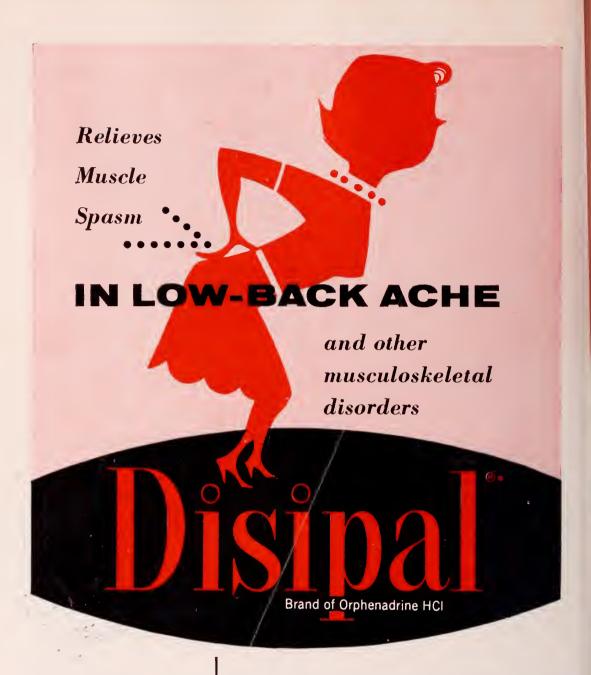
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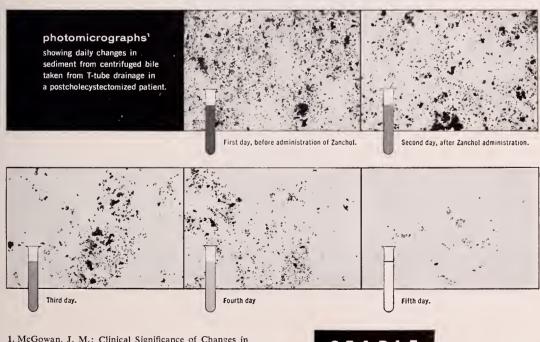
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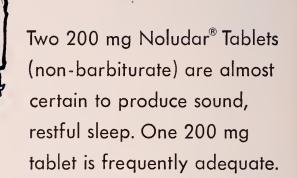
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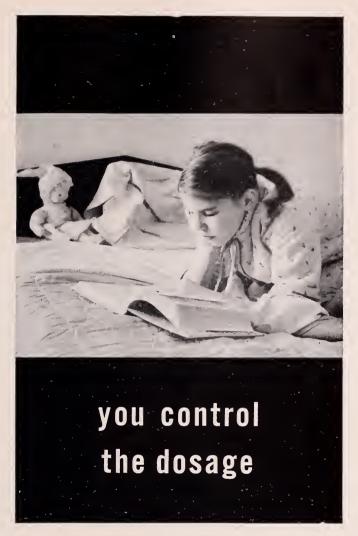
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1. Ensor, R. E. and H. R. Peters, Ann. Int. Med., 47:731, 1957.

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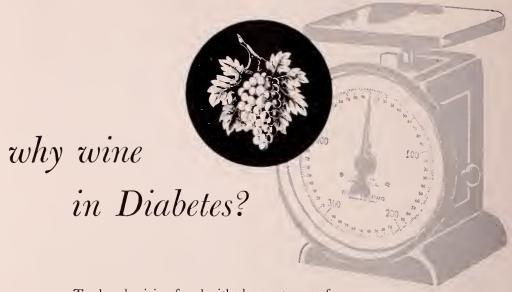
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^{*}Rest, Edward J., and Todd, Wilbert R., Textbook of Biochemistry, 2nd Ed. (New York, Macmillan, 1955), p. 522; p. 1074-5.







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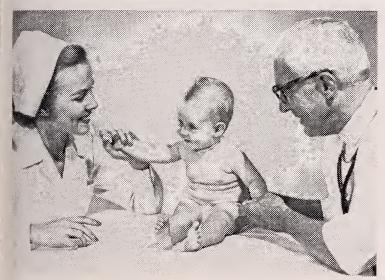
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^{1.} Lichstein, J.; Morehouse, M. G., and Osmon, K. L.: Am. J. M. Sc. 232:156 (Aug.) 1956.

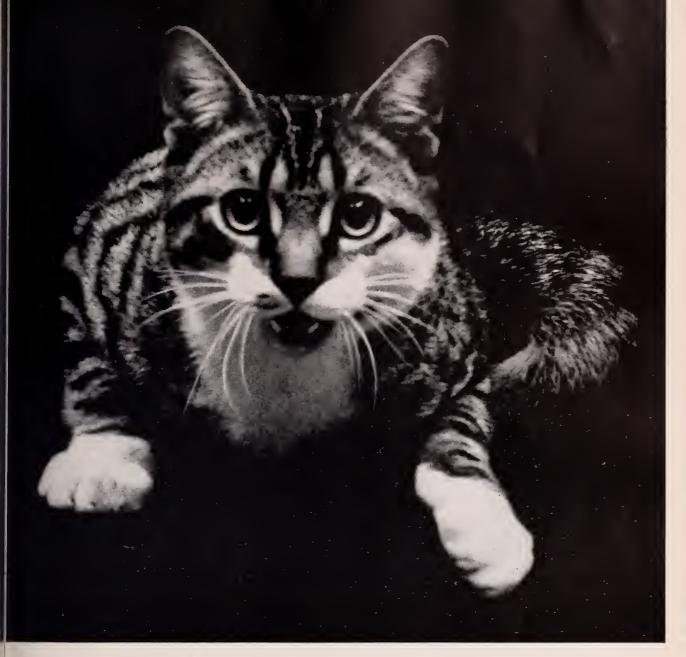
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^{4.} Schwartz, 1. R.; Lehman, E.: Ostrove, R., and Seibel,

J. M.: Gastroenterology 25:416 (Nov.) 1953.

^{5.} Silver, H. M.; Puccí, H., and Almy, T. P.; New England J. Med. 252;520 (March 31) 1955.



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VOL. XXXIX MAY, 1958 No. 5



CURRENT THERAPY

Acute Myocardial Infarction

(continued)

Atherogenic Factors — Diet

(continued)

With Commentary by Dr. John W. Gofman, Donner Laboratory, University of California, Berkeley.

First and foremost as regards diet, the total calories should be reduced, since obesity and atherosclerosis go together statistically. Obesity is also associated with some elevation of blood lipids.

Palatability

Palatabilty is mentioned in the literature as a matter of some concern but this concern should be minimized as it is felt that patients will adhere to whatever diet is prescribed for them particularly if it is known to be beneficial.

Today with the substitution of unsaturated fats, the palatability and satiety of the diet is practically unchanged. The use of liquid oils and other substituted fats will soon become a matter of routine if their value continues to be demonstrated.

For years we have prescribed a low cholesterol low fat diet which was not a particular hardship. For the most part, this meant primarily no liver, egg yolks, cheese, butter or other dairy products and the partaking of lean meat rather than fat meat

In their book, "The Low Fat, Low Cholesterol Diet," Gofman *et al* give many practical suggestions in preparing such a diet and patients may thereby partake of this diet with very little hardship whatsoever.

However it is now fairly well demonstrated that dietary cholesterol is not the significant factor in hypercholesterolemia. (It *may* be a factor — perhaps a minor one.) Lowering of cholesterol in the diet does not necessarily lower the blood cholesterol. Also the cholesterol — lowering effect of low fat, low cholesterol diets is not due to the lack of cholesterol.

Also, if fats are thought to be harmful, one would think that an absolute minimum of fats in the diet would be advisable, or even a fat free diet; but even low fat diets, and particuarly, fat free diets do not necessarily lower blood cholesterol and

deterioration has been observed in patients on low fat diets. (Kinsell)

With a totally fat-free diet containing less than the patient's caloric requirement, a rise in plasma cholesterol results when the carbohydrate of the diet is increased. When polyunsaturated fats are substituted for a calorically equivalent amount of carbohydrate, a prompt major and sustained lowering of plasma cholesterol occurs.

Thus it has been shown that the degree of unsaturation of the dietary fat is a critical factor in hypercholesterolemia. Even a high carbohydrate intake can produce a marked hypercholesterolemia and the higher the concentrated carbohydrate, the greater is the requirement for unsaturated fatty acids.

It should be noted that it is felt that the degree of unsaturation of the dietary fat is a critical factor in hypercholesterolemia rather than its origin from animal or vegetable sources. It has been estimated that American diets provide 45 per cent of the calories from fat and it has been shown that these for the most part are highly saturated (or hydrogenated).

Avoid Obesity

Therefore it is recommended as a general preventive measure that overweight patients first reduce their calories in the diet. This can best be done by reducing the fat intake and then, if desired, substituting unsaturated fats for saturated fats (that is, reduction of the fat of the diet from 45 per cent to 30 per cent).

Practically, this means simply lean meat, avoidance of cholesterol, such as liver and egg yolks (this still seems advisable), avoidance of dairy products and the substitution of a liquid cooking oil such as Mazola, Saffola, or Soy Oil, instead of the solid hydrogenated cooking fats.

Safflower oil is said to be better than the other oils in that it requires less calories to get the same

amount of linoleic acid.

Nuts are said to be a good source of polyunsaturates, particularly walnuts. Peanuts are fair, but peanut butter is hydrogenated which process destroys the essential fatty acids.

There has been considerable study and discussion as to the value of the cholesterol determination versus blood lipoprotein studies. The cooperative study organized by the National Advisory Heart Council felt that there was no advantage in the lipoprotein studies and that the cholesterol determination was cheaper and less time consuming, although there was not complete agreement as to the interpretation of these results.

Lipoprotein Studies

In general S_f 0-12 or S_f 12-400 lipoprotein levels are related to the cholesterol levels. However, there have been instances in which a particular regimen has been found to lower the blood cholesterol value while concurrently raising the serun lipoprotein values. As a general rule, the blood cholesterol level parallels the S_f 0-12 lipoprotein level.

Thus the cholesterol analysis can provide a reasonable estimate of the status of the $S_{\rm f}$ 0-12 lipoprotein. However, there is almost no relationship at all between the blood cholesterol level and the level of the $S_{\rm f}$ 12-400 lipoproteins.

In general, the $S_{\rm f}$ 20 - 400 lipoproteins are not affected by animal fat restriction or even by the substitution of unsaturated vegetable oils and patients with an elevation of such proteins will not respond to dietary regimen and there are some persons in which a carbohydrate supplementation will cause a rise in the $S_{\rm f}$ 20 - 400 lipoproteins.

Finally, there is a third group of patients who are refractory to saturated fat restriction and who thereby fail to respond to animal fat or other saturated fat restriction.

Thus there may be some benefit from lipoprotein studies in certain patients. They may be helpful in patients with coronary artery disease, those with family history of coronary heart disease, patients with diabetes mellitus, patients with xanthomatosis and their relatives, overweight patients, patients with thyroid disease, and perhaps patients with diagnostic problems in which coronary artery disease is included in the differential diagnosis.

Whether the vegetable oils reduce the lipoprotein levels or not is highly controversial, although some workers feel that the unsaturated vegetable oils do exert a special beneficial effect. Even if the unsaturated vegetable oils do not provide any specific beneficial effect (there is no evidence so far that they are harmful), they do provide a highly palat-

able dietary substitute which will make the cooking problem much simpler and improves the satiety value and palatability of a modified diet.

Effect of Antiatherogenic Factors

As regards the effect of other antiatherogenic factors on the lipoproteins: heparin lowers S_f 12 - 400 lipoproteins but the S_f 0 - 12 lipoproteins are not affected; estrogenic substances do affect the lipoproteins; thyriod lowers S_f 0 - 12 and S_f 12 - 20 but may or may not lower S_f 20 - 400. Effects of nicotinic acid (which lowers cholesterol levels) beta-sitosterol, linoleic acid and pyridoxine are controversial. (Nicotinic acid amide is ineffective.)

In treatment therefore: to reduce S_f 0 - 12 lipoproteins, limit the animal fat to 25 to 30 grams per day with the substitution of vegetable unsaturated oils.

To reduce the $\rm S_f$ 12-400 lipoproteins, limit carbohydrate intake to 125 to 150 grams per day and substitute vegetable unsaturated oils to replace the calories lost through carbohydrate restriction.

To reduce S_f 0 - 12 and S_f 12 - 400, limit fat to 25 to 30 grams and carbohydrate to 125 to 150 grams per day and substitute vegetable unsaturated fats. (Sugar substitutes such as saccharin and sucaryl simplify carbohydrate restriction).

Summary

We should encourage an optimistic view of atherosclerosis as there is evidence that it is preventable and reversible and that at least the process may be arrested.

We are endowed with two atherogenic factors over which we have no control: heredity and sex. There are two factors however that we can control: diabetes and hypertension. It is emphasized that every effort should be made to control these and particularly hypertension in the premenopausal woman.

Statistics demonstrate this rather vividly! These two — diabetes and hypertension — are known atherogenic factors and therefore before we as physicians begin to concern ourselves with controversial diets and atherogenic agents, we should make every effort to control diabetes and hypertension!

Finally, the dietary treatment is highly controversial. Reduction in calories, particularly the fat content of the diet in obese patients (from 45 per cent to 30 per cent) is recommended, since diets high in fats are higher in calories and since obesity and atherosclerosis go together statistically.

In view of present day studies, the addition of essential unsaturated fatty acids seems indicated, particularly in men and in patients with a family history of heart disease and those who have had a coronary or who have high blood cholesterols.

These polyunsaturates are apparently not harmful and also add to the palatability and satiety of the diet. Such diets are thereby not difficult and invoke no hardship.

Practically speaking, it means simply lean meat, avoidance of liver, egg yolks, dairy products and the use of one of the liquid cooking oils for cooking and for salads. (Dr. Gofman's book "Dietary Treatment and Prevention of Heart Disease." Putnam's & Sons, to be published, should be helpful.)

For the coronary patient with an elevated cholesterol or others who are possible "coronary candidates," a trial of sitosterol, the use of nicotinic acid, heparin or perhaps some of the vegetable oil preparations, are worthy of trial. One should be aware of the high caloric content of these preparations and be alert to their producing a weight gain in those patients for whom they are prescribed.

High fat diets tend to produce defects of clotting mechanism, and such unfavorable effects on blood coagulation by high fat meals may be an important factor in angina and thrombosis in some patients.

The value of lipoprotein studies has been discussed. (This material taken from a monograph of the Institute of Medical Physics.)

Finally, it has not been conclusively established that dietary factors are of a primary etiological importance in causing atherosclerosis or coronary artery disease. The feeling is that dietary fat does play some part perhaps, not merely the total fat, but the degree of unsaturation of fat in the diet; that is, the essential fatty acid content in the diet in proportion to the total dietary fat may be the most critical important factor.

Commentary by Dr. Gofman

Dr. Bernard has commented that it is yet unproved that diet will help reduce the incidence of acute myocardial infarction. There is some powerful evidence worth mentioning here concerning this point.

It is unfortunately impossible to view the coronary arteries during life and hence impossible to determine directly the rate of progression (or regression) of atherosclerosis under various circumstances of living. Therefore it is desirable if a lesion is available that can be directly observed. Such lesions are to be found in patients with xanthomatosis of the skin (xanthoma tuberosum). These lesions are the result of massive elevations in the blood level of S_f 12 - 400 lipoproteins, which same lipoproteins are involved in the development of coronary atherosclerosis in the population-at-

When the S_f 12 - 400 lipoproteins remain high, patients with xanthoma tuberosum do two things:

- (1) They experience further growth of all les-
- (2) They develop additional new lesions.

However, in 12 patients whose S_f 12 - 400 lipoproteins were lowered by dietary means and maintained lowered, all 12 patients showed the follow-

- (1) No further growth of old lesions.
- (2) No development of new lesions.
- (3) Regression and even disappearance of many of the old lesions.

The similarity of the atheroma and the xanthoma both in pathogenesis and histology is extreme. There is every reason to expect that what dietary lowering of blood lipoproteins does for xanthoma lesions it should do for atheroma lesions, perhaps at a faster, or perhaps at a slower rate.

JOHN W. GOFMAN, M.D.

Golf Tournament

The American Medical Golfing Association is holding its annual golf tournament in conjunction with the A.M.A. Convention June 23, 1958 at the beautiful Olympic Lakeside Golf and Country Club, San Francisco. This will be a whole day of rest and relaxation with golf, luncheon, banquet, and a prize for every one. Tee off time is from 8 a.m. to 2 p.m. All golfing doctors are invited. Handicaps scratch to 30 in flights.

For information, contact James J. Leary, M.D. Secretary, 450 Sutter Street, San Francisco, California.

ORTHOPAEDIC SURGERY NOTES

The Annual Program for Surgery and Acute Trauma

William Beaumont Army Hospital, El Paso

By W. Compere Basom, M.D., El Paso, Orthopaedic Editor

The annual symposium this year was given April 14 thru 16. Your Orthopaedic Editor has always enjoyed participating in this excellent surgical symposium.

This year the morning session was initiated with welcoming address by Brig. Gen. L. Holmes Ginn.

Jr., M.C.

Col. Robert L. Rhea, Jr., M.C. gave the orientation lecture. Col. Joseph R. Shaeffer, M.C. presented a well prepared oration on trauma.

After an intermission, Col. Robert L. Rhea, Jr., M.C. serving as moderator presided over the following papers:

"Shock and Resuscitation" by Lt. Col. John White, M.C., Debridement which included a lecture and film by Maj. James K. Pope, M.C.

"The Management of Cardiac Arrests", both a paper and film given by Dr. Samuel Crossett,

Management of Chest Injuries

Dr. Leo Villareal presented "Management of Cliest Injuries." Dr. Walter W. Wollmann presented "Management of Abdominal Injuries."

In the evening session a special movie was shown bringing out the "Emergency Surgery of

the Acutely Injured."

Tuesday subjects were of "Management of Trauma of the Genito-Urinary Tract" by Lt. Col. Robert E. Johnston, M.C.; "The Management of Trauma Involving the Cranium, Its Contents, The Vertebrae and Spinal Cord" given by Dr. William A. Jones; "The Burned Patient Management" given by Lt. Col. Edward H. Vogel, M.C.

The afternoon session with Col. Fred E. Seymour presiding brought out talks concerning "Vascular Injuries" by Col. Robert L. Rhea, Jr., M.C.; "Radiological Principles and Diagnosis and Treatment of the Injured Patient" by Col. Fred W. Seymour, M.C.; "Medical Aspects of Atomic Irradiation" by Major E. Marks, M.S.C., and "Facial Injuries in Trauma" by Dr. D. H. Ewalt.

Social Hour and Dinner

Tuesday evening the El Paso County Medical Society entertained with a social hour and a dinner.

The highlight of the evening was the lecture on "Basic Concepts of Medical Care In Disaster" by Col. Joseph R. Shaeffer, consultant on medical care in disaster from the office of The Surgeon

General of the United States Army,

Wednesday the following subjects were covered: "General Orthopaedic Principles In The Treatment of Trauma" by Lt. Col. John J. Breman, M.C.; "Fractures of the Upper Extremity" by Dr. W. Compere Basom; "Hand Injuries" by Lt. Col. William F. MacDonald, M.C.; "Fractures of the Lower Extremity" by Dr. Louis W. Breck; and "Traumatic Amputations" by Lt. Col. William F. McDonald, M.C.

Afternoon Session

The afternoon session with Col. Byron G. Mc-Kibben, M.C. presiding, included the lecture, "Compound Fractures and Joint Injuries" by Major Victor S. King, M.C. There was an excellent panel discussion of facial injuries including "Defects of the Scalp" by Dr. Willard W. Schuessler; "Management of Ocular Injuries" by Lt. Col. John T. Martin, M.C.; "Management of Injuries to the Ear, Nose and Face" by Col. Byron G. McKibben, M.C.; and "Management of Maxillofacial Injuries" by Lt. Col. James E. Chipps, D.C.

Some of the generalization points included in the orthopaedic portion of this program were the

following:

The diagnosis is very important. Adequate roentgenographic studies should be utilized.

Soft tissue should be allowed to recover from the effects of direct blows and trauma prior to open reduction. This procedure should only be resorted to if absolutely necessary in this situation and in non-compound fractures. A waiting period is very important.

Clean Apparatus

Fixation apparatus to be used should be cleaned carefully of all foreign and chemical substances prior to sterilization. This will reduce the incidence of tissue reaction to the internal fixation material.

Fixation, both internally and externally, should be continued until the fracture is unquestionably united radiologically. In other words, casts, pins, plates and so forth should not be removed early in the course of the fracture treatment.

Fractures of the metacarpals and phalanges are more difficult to manage than the average patient realizes. This is an important point in the management of hand injuries.

APHORISMS and MEMORABILIA

Truths and Concepts Concerning The Gastro-Intestinal Tract

(continued)

- **8.** "About $\frac{1}{3}$ of cirrhosis cases have a small liver, about $\frac{1}{3}$ a normal liver, and $\frac{1}{3}$ a big liver." —Richard Cabot, *loc. cit.*, p. 204.
- **9.** "The intestine is like the kidney in that a long standing disease may show clinical symptoms only now and then, presenting itself suddenly under the guise of an acute disease. They remain diseased through long symptomless periods."—Richard Cabot (Source uncertain).
- **10.** "We often see gas in the small intestine in bedridden or sick patients."—Aubrey Hampton, New England J. Med., 205: 727, 1931.
- 11. "We think that if the diaphragm moves there is no pus immediately below it, between the diaphragm and the liver."—George Holmes, New England J. Med., 205: 729, 1931.
- **12.** "Fever is a constant accompaniment of cirrhosis and should be expected with it rather than not expected with it."—Chester Jones, *New England J. Med.*, 205: 968, 1931.
- 13. "The fact that the barium enema was negative does not necessarily rule out a lesion in the colon. A negative barium enema means a normal colon in about 70% of the cases."—George Holmes, New England J. Med., 202: 183, 1930.
- **14.** "Barium by mouth in an obstructing lesion of the large bowel is an extremely dangerous procedure."—L. McKittrick, *New England J. Med.*, 202: 494, 1930.
- **15.** "One should never be influenced against the diagnosis of malignant disease of the colon solely on the basis of negative X-ray findings."—L. McKittrick, *loc. cit.*, p. 495.
- **16.** "Proctoscopy properly done and interpreted is of much more value in malignancy of the lower bowel than X-ray."—L. McKittrick, *loc. cit.*, p. 495.
- **17.** "A negative barium enema does not rule out neoplasm of the rectum or of the sigmoid, for X-rays of this region are notoriously untrustworthy."—C. Shedden, New England J. Med., 202: 1017, 1930.
- **18.** "Many people with jaundice have diarrhea."—RICHARD CABOT, New England J. Med., 202: 1261, 1930.

- 19. "I am very skeptical of any report of black stools not seen by a doctor or nurse. People's reports of the color of stools are notoriously inexact." —RICHARD CABOT, New England J. Med., 199: 287, 1928.
- **20.** "One set of gastro-intestinal X-rays is never to be relied upon implicitly as regards disease either in the stomach or in the intestinal tract."—Ed. Young, Jr., New England J. Med., 199: 383, 1928.
- **21.** "To cause sugar to appear in the urine in acute pancreatitis there must be an almost complete destruction of the pancreas, and if that occurs death usually takes place within a few hours."—Daniel F. Jones, *New England J. Med.*, 199: 538, 1928.
- **22.** "The duodenal bulb is apt to be deformed in gall bladder disease and may be misleading."—George Holmes, *New England J. Med.*, 198: 867, 1928.
- **23.** "You perceive, therefore, that in jaundice everything denoting an unusual state of the nervous system, whether it be too much sleep or too little, demands your attention."—ROBERT GRAVES, A System of Clin. Med., Barrington & Haswell, Phil., 1843, (3rd. Amer. Ed.), p. 384.
- **24.** "When a patient under treatment for gastric ulcer becomes irritable, refuses food and complains of headache, alkalosis and not boredom is the probable cause."—H. French, *Differential Diagnosis*, Wm. Wood & Co., N. Y., 1936, p. 186.
- **25.** "In children, massive tumours of the abdomen are not uncommon and, as a rule, are either sarcoinata of the kidney or of the retroperitoneal glands. The kidney tumours are the more frequent. Both develop painlessly."—W. Osler, *Lectures on the Diagnosis of Abdominal Tumours*, D. Appleton & Co., N. Y., 1899, p. 161.
- 26. "When a stool is clay colored the conclusion that bile is absent is not warranted without a chemical test for bile. The color of the stool in chronic pancreatitis may vary from a grey to a glistening white, or when the fat is in crystalline form it may resemble aluminum paint."—Virgil Simpson, Diseases of Pancreas, Kentucky M. J., 32: 108, 1934.

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THE PRESIDENT'S COLUMN

It Shouldn't Happen to a Doc

By Louis G. Jekel, M.D., Phoenix

Every day cannot be a good day, but this one must have been Friday, the 13th.

At 9:59 a.m. Mr. Smith walked into the empty



Dr. Louis G. Jekel

reception room to keep his 10:00 o'clock appointment. Immediately following him, so closely that the door did not have time to close, came Mrs. Jones, Mr. Brown, Mr. Black, Mrs. Green, and Mrs. White.

"Six people all at once?" barked the doctor to his poor unsuspecting receptionist. "Did you make six appointments for ten o'clock?"

Of course she had not. Mr. Smith, as stated above, had a 10:00 o'clock appointment. Mrs. Jones was 30 minutes late for her 9:30 appointment. Mr. Brown was 30 minutes early for his 10:30 appointment. Mr. Black was due at 10:00 o'clock tomorrow. Mr. Green's appointment was for 10:00 o'clock yesterday, and Mrs. White was due last Friday, a week ago today, at 10:00 o'clock. None of them wanted to wait, of course.

Do you think it couldn't happen? Well, it did!

"Doc, do you think you are on the right track?"

"What is it, Doc? Or do you know?"

Wouldn't it be wonderful if they would ask that question some time when you did know beyond doubt?

Doctor: "You seem to be much better today." Patient: "Oh, yeah, Doc. I feel great. I think I'm all right now."

Doctor: "Did you use up all of the medicine that I ordered?"

Patient: "Oh, I didn't get your medicine, Doc. A friend of mine told me what to do, and it worked fine. I'm all right now."

* * *

Some days it doesn't pay to get out of bed.

Texas Surgical Society Meeting Held in El Paso

The spring semi-annual meeting of the Texas Surgical Society was held in El Paso April 6, 7 and 8, 1958, with an attendance of 150 and an excellent scientific program.

Officers

Officers of the organization are Dr. J. Peyton Barnes, Houston, president; Dr. Charles Bussey, Dallas, 1st vice-president; Dr. W. E. Crump, Wichita Falls, 2nd vice-president; Dr. G. V. Brindley, Jr., Temple, secretary; Dr. Robert L. Sewell, Fort Worth, treasurer.

In charge of local arrangements were Dr. Robert B. Homan, Jr., chairman, Dr. W. R. Curtis, Dr. Gerald H. Jordan, Dr. W. W. Schuessler, Dr. Leigh Wilcox, and Dr. Charles E. Webb, all of El Paso.

The organization's next meeting will be held in the Galvez Hotel in Galveston October 5, 6 and 7, 1958.

MEETINGS

New Mexico Medical Society To Meet in Albuquerque



Dr. Gundersen

The 76th annual meeting of the New Mexico Medical Society will be held in Albuquerque May 13 to 16, in the Civic Auditorium.

The Arrangements Committee in the name of the Society President, Dr. Samuel R. Ziegler, has invited members with the following message:

"Coming at a delightful time of the year, this meeting could well serve as a Spring vacation for you, after the hard Winter's practice and the battle with the 'flu'.

"The meetings this year will be held in the attractive new Civic Auditorium amid surroundings that should prove restful. Everything possible is being done to insure your comfort and provide as completely as possible for your convenience.

"This year the meeting is being arranged as an activity of the State Society, but, more particularly, it establishes a new emphasis by being the President's Meeting. It represents the culmination of his year's activity and we hope a fitting climax for that year."

Speakers Listed

Speakers will be Dr. Elmer Belt, Clinical Professor of Surgery of the University of California Medical Center in Los Angeles; Dr. Matthew Block, Associate Professor of Medicine and Hema-

tologist at the University of Colorado Medical Center; Dr. Alston Callahan, Birmingham, Alabama, author of "Surgery of the Eye — Injuries" and "Surgery of the Eye — Diseases"; Dr. Thomas Findley, Professor of Cardiovascular Research in the Medical College of Georgia; Dr. Rupert Raney, Assistant Clinical Professor of Surgery at the University of California of Los Angeles Medical School;

Dr. Alan L. Frankel, Albuquerque internist; Dr. Max Sadove, Professor of Surgery at the University of Illinois College of Medicine; Dr. Kinsey M. Simonton, Associate Professor of Otolaryngology and Rhinology at the Mayo Foundation Graduate School of the University of Minnesota; Dr. Gunnar Gundersen, La Crosse, Wisconsin, President-Elect of the American Medical Association; and Dr. John E. McDonald, member of the Orthopaedic Staff of the University of Oklahoma School of Medicine.

Dr. Gundersen will talk on medical education in the U. S. Dr. McDonald, a member of the Legislative Committee of the AMA, will discuss national legislation.

Council Meeting

The Council will meet on Sunday, May 11, and

Dr. Belt

Dr. Block

Dr. Callahan







Program of the New M

GENERAL INFORMATION

Seventy-Sixth Annual Meeting New Mexico Medical Society

Civic Auditorium, Albuquerque, N. M.

The Annual Meeting of the Council will be held Sunday, May 11, and the House of Delegates will convene May 13 at 9:00 A.M. and 2:00 P.M., in the Assembly Hall, Civic Auditorium, with Samuel R. Ziegler, M.D., Presiding.

For further information, write, Program Chairman, Stuart W. Adler, M.D., New Mexico Medical Society, 221 Central, NW., Albuquerque, New Mexico.

Registration may be made in advance or at Meeting Hall: Fee \$10.00.

WEDNESDAY, MAY 14, 1958 GENERAL MEETING

A.M.

8:00-8:45 Registration

8:45 Opening of the 76th Annual Meet-

ing of the New Mexico Medical

Society

9:00 Presidential Address

SCIENTIFIC PROGRAM — 1st SESSION

9:30 "Recent Trends in Premedication"

Max Sadove, M.D.

10:00 "Obstructive Uropathy—Its Cause and Effect: A Consideration of This

Symptom Complex by Age Groups" Elmer Belt, M.D.

10:50 Clinical-Pathological Conference.

Medical Moderator: Charles Beeson, M.D.

12:30 P.M. Luncheon — Alvarado Hotel "National Legislation", John Mc-Donald, M.D.

SCIENTIFIC PROGRAM — 2nd SESSION

2:30 "Management of Cardiac Emergencies", Alan L. Frankel, M.D.

3:00 "The Management of Lymphomas and Leukemias", Matthew Block, M.D.

3:30 "Peripheral Vascular Diseases", Thomas P. Findley, M.D.

4:20 Panel Discussion

"Diagnosis & Management of Anemia." Moderator: Matthew Block, M.D.

7:00 Smoker — Fez Club

THURSDAY, MAY 15, 1958 SCIENTIFIC PROGRAM — 3rd SESSION

A.M.

8:00 Movies

9:00 "Ophthalmic Advances of Interest to General Practitioners", Alston

Callahan, M.D.



Dr. Findley



Dr. Frankel



Dr. McDonald

cal Society Annual Meeting

9:30	"The Proper Utilization of the Hematology Laboratory in Clinical Medicine". Matthew Block, M.D.	(
10:00	"Carcinoma of the Prostate — Its Early Recognition. The Results of Treatment by Total Prostatectomy", Elmer Belt. M.D.	
10:50	Clinical-Pathological Conference. Surgical Moderator: Roy D. McClure, M.D.	
12:30	Luncheon — Alvarado Hotel. "Changing Concepts in Medical Education", Gunnar Gundersen, M.D.	1

SCIENTIFIC PROGRAM — 4th SESSION

SCIENT	TIFIC PROGRAM — 4th SESSION
P.M.	
2:30	"Recent Changes in Immediate Post-operative Care". Max Sadove, M.D.
3:00	"Intracranial Surgical Lesions — Their Diagnosis & Management". Rupert Raney, M.D.
3:30	"Nasal Symptoms — Physiologic & Pathologic". Kinsey M. Simonton, M.D.
4:20	Panel Discussion: "Management of

the Acutely Traumatized Patient".

Moderator: Rupert Raney, M.D.

6:30 Dinner Dance—Albuquerque Country Club.

FRIDAY, MAY 16, 1958 SCIENTIFIC PROGRAM — 5th SESSION

A.M.	
8:00	Movies
9:00	"Antibiotic Therapy for the Ears Nose and Throat". Kinsey M. Simonton, M.D.
9:30	"Diabetic Acidosis" Thomas P. Findley, M.D.
0:00	"The Diagnosis and Managemen of Spinal Cord Tumors". Rupert Raney, M.D.
0:50	Panel Discussion: "Management o the Geriatric Patient". Moderator Thomas P. Findley, M.D.

Conclusion of Official Program Specialty Luncheons As Announced

1:30 Room A. Meeting of the New Mexico Society of Internal Medicine.

2:00 Assembly Hall. Organization and Scientific Meeting of the American College of Chest Physicians. Burgess Gordon, M.D.. President. ACCP, Presiding.

Entertainment As Announced







Dr. Raney

Dr. Sadove

Dr. Simonton

the House of Delegates will have two sessions on Tuesday, May 13. The smoker will be held Wednesday night, the dinner-dance Thursday night, with the scientific sessions of the State meeting terminating at noon Friday. Friday noon and evening such allied specialty groups as the American College of Chest Physicians, the American Academy of Internal Medicine, the Orthopaedic Society, and the Ob-Gyn group will meet.

New Mexico Chapter, American College of Chest Physicians Annual Meeting, 2:00 p.m., May 16, 1958

Civic Auditorium, Albuquerque, New Mexico

Greeting: Burgess L. Gordon, M.D., Albuquerque; President, American College of Chest Physicians.

Symposium — Pulmonary Emphysema

E. R. Levine, M.D., Chicago — Moderator Wesley Childs, M.D. — Surgical Experience

William Knoll, M.D. — Anesthesia Experience

North Longfield, M.D., Veterans Hospital, Albuquerque — Physiology Observations

George Simson, M.D. - Medical Treatment and Observations

Fred Hanold, M.D. — The Heart in Pulmonary Emphysema

A. H. Andrews, M.D., Chicago — Bronchitis and Obstructive Pulmonary Emphyseina Allan Hurst, M.D., Denver — Experience with Children with Emphyseina

Scleroderma of the Lung

R. Drew Miller, M.D., Mayo Clinic, Rochester, Minnesota

Hyaline Membrane in the New Born

Roy Goddard, M.D., Albuquerque — Moderator

W. K. Woodard, M.D., Pediatrician - Experience and Treatment

Omar Legant, M.D., Radiologist — Evaluation of X-ray Examination

H. V. Beighley, M.D., Pathologist — Histopathy

SOUTHWESTERN MEET — Attending the regular meeting of the Southwestern New Mexico Medical Society in Deming, N. M., April 9 are Dr. Maynard S. Hart, El Paso, the speaker, (second from left), Dr. Andrew M. Babey, Las Cruces, president (left); Dr. L. J. Whitaker, Deming, Vice-President (right); and Dr. T. H. Klunder, Hatch, Secretary-Treasurer. Dr. Hart spoke on experiences with and follow-up of 5000 cases of Papanicolaou smears.



ORIGINAL ARTICLES

The Etiology of Backache: Value of Postural Correction

by IRVING H. KUPERSMITH,* M.D., Brooklyn, N.Y.

Backache is one of the most common symptoms encountered in medical practice and its etiology is exceedingly diverse. For convenience in diagnosis, I have formulated a practical classification for use as a check list. Although it is by no means complete, its use in cases where backache is the chief symptom may suggest the etiological factor in many cases.

On physical examination confirmation of the subjective backache is obtained by the patient's inability to move his back through a normal range of motion, either forward, backward or in rotation, as well as sidewise bending.

The most common causes of backaches will fit into the following practical classification:

I. Functional Causes of Backache

1. Fatigue

- a. occupational (heavy lifting)
- b. athletic (excessive exercise)

2. Postural Strain

- a. sitting in poorly constructed chairs
- b. long drives in the average automobile
- c. bending excessively at work
- d. excessive height or shortness of stature
- e. inequality of lower limbs

3. Psychosomatic Conditions

- a. neurasthenia
- b. organic neuroses

4. General Debility

- a. old age
- b. muscular weakness

II. Distal Organic Causes of Backache

1. Acute Infectious Diseases

- a. influenza
- b. pneumonia
- c. other febrile diseases

2. Wasting Diseases

- a. carcinoma
- b. tuberculosis
- c. hemiplegia
- d. paralyses
- 3. Pregnancy (unbalanced posture)
- 4. Obesity (unbalanced posture)
- 5. Retroversion of the uterus
- 6. Cystitis
- 7. Renal or Vesical Calculus
- 8. Carcinoma of the prostate
- 9. Tabes dorsalis
- 10. Paget's Disease (osteititis deformans), from postural imbalance caused by the excessively heavy skull
- *Formerly Visiting Physician at Kings County Hospital, Brooklyn, N.Y., and Associate Clinical Physician at the Endocrine Clinic.

11. Pes Planus

- 12. Postoperative (abdominal surgery)
- 13. Constipation
- 14. Menstruation

III. Proximal Organic Causes of Backache

- 1. Lumbo-Sacral Strain
- 2. Arthritis of Spine
 - a. Osteoarthritis
 - b. Rheumatoid arthritis

3. Displaced Intervertebral Discs

- a. herniated discs
- b. degenerated discs
- c. spondylizemia

4. Sacro-iliac Conditions

- a. sacro-iliac strain
- b. sacro-iliac subluxation
- c. sacro-iliitis

5. Unstable Lumbo-Sacral Junction

6. Traumatic Disturbances of Spine

7. Fibrositis

- a. muscular rheumatism
- b. lumbago
- 8. Sciatica (compression of nerve)

Discussion

The most frequent cause of low backache is lumbosacral strain. In a series of 3,587 cases of pain low in the back this condition accounted for the diagnosis in 1,603 (44.7 per cent¹). The backache had existed for more than three years in many of these cases. All of the patients with postural backache were treated conservatively with complete relief in 22.2 per cent of the cases and improvement in an additional 75 per cent.

Relaxation of the ligaments of the lumbar and pelvic points is a common cause of backache. Of 146 consecutive patients with previously undiagnosed back disability, 95 per cent were shown to have relaxed ligaments as the chief cause.²

A controlled investigation demonstrated quite conclusively that the findings on roentgenograms of the lumbo-sacral region of normal persons and those with backache are quite similar. A comparative study of 100 normal unselected persons and 100 patients with backache showed no significant group differences in the roentgenograms.³

Psychosomatic disorders play a large part in many functional backaches, so that the condition may be considered an organ neurosis.⁴ In a series of 122 soldiers engaged in combat during the Korean war, who complained of backache, 54.2 per cent had no objective evidence of local disease and the back pain was diagnosed as a symptom of a neurosis, either hysteria or anxiety neurosis.⁵

Five years of experience at an iron works, with a series of 1,163 men employed in heavy industry, showed that suffering and absenteeism caused by low back pain can be reduced greatly if all cases, even trivial ones, are treated promptly by relaxation and manipulation plus advice concerning posture, especially when sitting.⁶

In backaches caused by muscular rheumatism or lumbago, postural therapy should be used in conjunction with mephenesin as a muscular relaxant and belladonna extract as an antispasmodic.⁷ A large measure of symptomatic relief is provided by relaxation of the spasm and tension of the long spinal muscles, especially the latissimus dorsi.

The Postural Factor In Backaches

Either alone or in combination with other conditions, incorrect posture is an important factor in the etiology of most backaches. The correction of posture, especially in the sitting position, is one of the requirements of treatment.

Man's comparatively recent transition from the more primitive postures to the upright position places a great strain upon his lumbar spine with which his muscles are poorly equipped to cope. This evolutionary factor is largely responsible for many acute low back pains. Repeated hyperextension of the lumbar spine and lumbo-sacral joint is one of the important precipitating factors in lumbar breakdown.

Very often, examination of the back does not reveal a definite disease process but does show improper posture, and inability of muscles and ligaments to support the spine properly, leading to excessive strain on groups of muscles not intended to bear the whole burden alone, either in the sitting or standing position. It is felt by many physicians that this excessive improper use of the spine can ultimately result in a pathological state. Certainly the final result is increased tension in all muscles, with a nervous and fatigned individual, unable to go about his daily tasks with any measure of comfort or efficiency.

It is, therefore, evident that prevention of lumbo-sacral strain by maintaining proper body mechanics in vulnerable people is of extreme importance. In this group of "vulnerable" people should be considered the following situations:

Sedentary Occupations with insufficient exercise decrease the tone efficiency of unused muscles, rendering them unable to support and protect the spine properly.

The Aging Process is characterized by actual decrease in muscle mass as well as diminished tone. The result is the bowed shoulders, increased curves of the back and neck.

Obesity is a notorious contributor to back strain. In addition to the increased weight load, there is

an improper distribution of the fat with the abdomen receiving more than its share.

Pregnaney with its increased abdominal pressure presents a problem similar to obesity, and to this is added the relaxation of pelvic and spinal ligaments in anticipation of the act of childbirth. The strained back of the pregnant woman frequently requires supports and can be the forerunner of more persistent symptoms in later life.

After abdominal surgery there is weakness of the sutured muscles,

In order to prescribe proper treatment for those who have back difficulty or the potential of developing it, it is advisable to question into the activities of daily living in order to mitigate improper use of the back. Corrective mattresses, foot supports and in extreme cases, back braces may be ordered. Braces must be recommended with caution because of their tendency to cause atrophic changes.

Correct Back Support

A very much neglected area is the proper support of the back while sitting—in the home, at the work desk, and particularly in the automobile.

It is particularly in motor vehicles that considerable demand is made on the "upholding" function of the back muscles to adjust to vibration, swaying with curves, and the jogging effect of bumps. In addition, there is the further increase in muscle tone required in "paying attention to the road" ready to anticipate possible dangers. While sitting relieves the lower extremities of their load, the back still has to fulfill its function of supporting the upper trunk and to maintain a measure of mobility.

There are certain definite requirements for comfortable, restful sustained sitting. These are as follows:

First: The underseating must be firm to give a good foundation to the pelvic bones, which in turn support the spine. There must be very slight give, so that undue pressure is not exerted on bony prominences, because sitting on a plain board itself soon proves uncomfortable, particularly if there is no back rest.

Second: Proper support forward should be given at the lumbar spine, that is "the small of the back," to maintain the lumbar spine in a "neutral" position, preventing excessive pull on either one of the opposing sets of muscles and ligaments. The ordinary type of cushion back cannot adjust itself to the contour of any given individual nor can this pressure be adjusted at the required area and with sufficient force to put at rest the overworked and irritated muscles. The ideal situation would be a sheet of tensile material permitting conformity to contour with a device to vary the

tensile quality. In addition, the back support should have an adjustment for the variations in "sitting height" of different individuals and finally, the capacity to adjust forward or back, the entire axis of the spine in its relationship to the thighs and pelvis.

The most important feature of any chair back support is that it can be suited by experiment of the individual himself to that position and contour which by personal experience renders him the greatest and most sustained comfort.

As shown in Figures 1, and 2,* a new three-way adjustable back aid especially for sustained automobile driving has been devised. It provides the following anatomically correct requirements of a good back support for driving and sitting:

- 1. A firm underseating.
- 2. A firm, tensile back rest.
- 3. Adjustments that will permit individually suited variations in:
 - (a) The height of the back rest.
 - (b) The degree of "push" in the needed area of the low back.

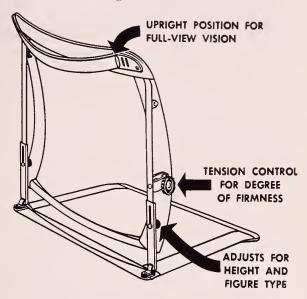


Figure 1

Three-Way Adjustable Back Aid, especially designed for automobile drivers. Made of fiberglass.

*Supplied for this report as Mark-Fore 3-Way Adjustable Back-Aide by Market Forge Co., of Everett 49, Mass.

(c) The angle of tilt of the back rest portion in its relationship to the seat to which it is hinged.



Conclusions

- 1. A practical check list classification is presented for the diverse etiological factors that may account for backaches.
- 2. Lumbo-sacral strain and relaxation of the ligaments of the lumbar and pelvic joints are the most common causes of backaches.
- 3. Functional backaches due to fatigue, incorrect posture or psychosomatic conditions account for most cases of lumbo-sacral strain.
- 4. Due to the fact that automobile seats are designed for style rather than anatomical considerations, very many people suffer from backaches after long drives.
- 5. A special three-way adjustable back aid has been devised, according to anatomical requirements, to avoid backaches due to sustained driving and also for home use by patients suffering from back pains.

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MONTHLY CLINICAL PATHOLOGICAL CONFERENCE EL PASO GENERAL HOSPITAL March 20, 1958

F. P. Bornstein, M.D., Editor—Case Number 991

Presentation of Case by Ann Damiani, M.D.

History-Dr. Nathan Kleban

A 71-year-old, unmarried, unemployed, Latin American woman was admitted to another hospital on November 27, 1957, and transferred on December 17, 1957, to El Paso General Hospital, where she died on January 8, 1958.

In August, 1957, the patient began to suffer from pain and weakness, followed by paralysis of the legs. She lost control of her urinary sphincter. Poor appetite was accompanied by a 75-pound weight loss.

In November, she complained of severe back pain, had a burn on her right thigh from a hot water bottle, and decubitous ulcers over the sacrum. Sensation was absent below T-8 except for slight vibratory perception. Both patellar and the left Achilles tendon reflexes were absent.

Complete Paralysis

There was complete paralysis of the lower extremities. Extensor plantar reflex was present on the right. Pleural effusion on the left, with slight mediastinal shift to that side were noted on an X-ray film of the chest.

Films of the cervical, thoracic and lumbar spines were interpreted as demonstrating severe hypertrophic arthritis. Spinal paracentesis was performed in the fourth lumbar intervertebral space.

Opening pressure was the equivalent of 100 mm. of water. There was no movement of the fluid column when the jugular veins were compressed.

Spinal Fluid

The spinal fluid was clear, colorless, contained two red blood cells, 45 ing. percent sugar, 492 mg percent protein, gave a negative Wasserman test. Nine cc. of Pantopaque was blocked at the upper portion of the body of the eleventh thoracic vertebra. This was interpreted as a posterior extradural intraspinal block.

Fluid removed from the left pleural space contained 1250 WBC; 25,000 RBC: 3.6 gm. percent protein; 66 polyps and 34 lymphs. There was no growth in 72 hours. No tumor cells were seen.

Pain in Abdomen

Blood counts, urinalysis, alkaline phosphatase.

phosphorous, and urea nitrogen were within normal limits. Serum albumin was 3.2 gms. percent and globulin 3.0 gms. percent.

For two weeks, temperature ranged up to 103°. The patient complained of pain in the left upper abdominal quadrant, extending down to the suprepubic area.

Urine from the indwelling catheter became bloody. After being carried to the operating room. the patient refused to permit surgical exploration of the spinal canal. She was then transferred to this hospital.

Physical Examination

Temperature 98.6. Pulse 110. Respiration 26. Blood pressure 140/80.

The patient was confused, listless, and unable to give a history. Although still obese, there was evidence of weight loss. Breath sounds were diminshed in the left lower lung field. Percussion note was dull in the same area.

The cardiac PMI was in the 6th left intercostal space, two cm. outside the mid-clavicular line. The abdominal wall was pendulous. The edge of the liver was thought to be three finger-breadths below the right costal margin. Hard feces were present in the rectum.

Ulcers were present on all pressure points. There was paralysis of the legs, equivocal patellar reflexes, and a bilateral extensor plantar reflex.

Hospital Course

A neuropsychiatric consultant recorded on December 24, that the patient was confused and disorientated as to time, place and person. His diagnosis was psychosis with organic disease of the central nervous system. He recommended nursing care, supportive therapy, and a legal guard-

Pressures and appearance of spinal fluid, when a spinal paracentesis was done on the same day, were not recorded.

Pain, confusion, restlessness, disinterest, refusal to eat, and resistance to being disturbed were terminated by death on her 21st hospital day.

Laboratory Findings

Chemistries: Glucose—12/17/57—100 mg per-

cent. Urea nitrogen—10.0 mg. percent. CO_2 capacity—12/18/57—23.6 meq/L. Chlorides—12/18/57—85.5 meq/L. Potassium—12/18/57—4.0 mg. percent. Sodium—12/18/57—137 mg. per cent.

Urinalysis: 12/17/57 — (Catheterized) Sugar negative, trace acetone, numerous WBC.

Blood count: 12/17/57—Hb. 10.2 gms. Ht. 36 per cent. WBC 11,700. Stabs 2. Segs. 66, Lymphs. 30, Monos. 1.

Spinal fluid: 12/25/57 — WBC 8. Polys 3. Lymphs. 5. Total protein 444 mg, per cent. Sugar 108 mg. per cent. Chlorides 113 meq/1 as NaCl. Culture and sensitivity—no growth.

X-Ray—12/18/57—Chest, lumbo-dorsal spine: "Sagittal view of the chest reveals obscuration of the entire left hemithorax. There is a displacement of the mediastinum towards the left. These changes are consistent with an atelectasis, with accompanying pleural effusion on the left. There are advanced hypertrophic changes in the thoracic spine. Several ill-defined opacities on the right are consistent with metastatic disease. The trachea is in the mid-line. The visualized bony thorax reveals no evidence of osteolytic or osteoblastic metastasis."

Dr. Vincent M. Ravel

The chest film shows the obscuration of the entire hemithorax with displacement of the mediastinum towards the left. A more penetrating view confirms the changes in the left hemithorax, which consists of an atelectasis and pleurisy with effusion, and an underlying secondary pneumonitis is very probable.

At the same time, there are certain nodular lesions in the right hemithorax which are consistent with a metastatic process. The abdomen is not particularly significant. It shows the previously injected iodized oil in the sub-arachnoid space, and we do not have the films that show the block which was observed in the myelogram at another hospital.

We can identify no osteolytic or osteoblastic lesions, and this is not the sort of thing that you see with a bronchogenic carcinoma with spread to the opposite lung and spread to the central nervous system.

The possibility of remote metastases from a kidney or from some other viscera, of course, cannot be entirely excluded.

Dr. Kleban: About how much Pantopaque is there, and is that about the usual residual amount?

Dr. Ravel: I would say that this represents probably less than one cc., and, of course, Pantopaque is a benign substance. We have seen Pantopaque in a patient in the sub-arachnoid pathways all the way up into the ventricular system without significant changes.

Occasionally, there occurs a low grade type of meningitis, but, in general, of all the opaque media that have been used intraspinally. Pantopaque is the best tolerated.

Dr. Manley B. Cohen: Are those cavities in the left upper lung?

Dr. Ravel: Well, we didn't interpret them as cavities. I suppose they could be, except that this was a confused and uncooperative patient. We would really have liked to have some more views.

On all pictures, there is motion. At no time did the patient ever stop breathing and try to maintain a semblance of immobility. I don't believe that those shadows are consistent with cavities. They might be.

I think this is probably going to be a bronchogenic lesion with metastasis to the central nervous system and to the opposite lung.

Dr. Damiani: I think there is an error in the age here. This is a spinster, approximately 56 years old, who lived alone with her mother. I first saw her on a house call. She was completely confined to bed.

Her physical condition was very poor. She had complete paralysis from the waist down. There were decubital ulcers on all pressure points, and a large burned area on the right thigh.

To begin with, she was a very obese woman. I imagine she weighed about 260 or 270 pounds at the time I saw her, and at that time she told me she had lost approximately 75 pounds.

She had been confined to bed from August to November, at the time I saw her. She did have reflexes in both patellae, more on the right than on the left. There was a Babinsky on the right, with none on the left.

Complete Anesthesia

There was complete anesthesia to the umbilicus with hypesthesia to the costal margin, which would place a lesion of the spinal cord at approximately the level of T-10, T-11, or L-5.

She was very uncooperative about going to the hospital, and it was through a neighbor that an ambulance was called and she was sent to the hospital.

She was having a great deal of pain in the lower extremities, and in the lower abdominal areas. She was incontinent of urine, and had retention of feces.

She was sent to X-Ray for a myelogram, but refused it and returned to her room. However, after considerable persuasion, she agreed to have the myelogram, which revealed a complete block at the level of T-11 and T-10.

It was felt that this was either a primary lesion, with pleural effusion secondary to pneumonia, or a secondary lesion, metastatic, primary site undetermined.

As time progressed, the patient became even more uncooperative and refused medication. Apparently, the lesion was growing rapidly. She lost reflexes in both patellae and the Babinsky disappeared. She refused to eat, and it was necessary to give her fluids and supplementary feedings.

However, during the time she spent at Hotel Dieu, she was completely oriented as to time, place and person, and her main concern was financial. Neurosurgical consultation was obtained.

It was felt that in view of the progressive character of the lesion, and in view of the decline of her condition and severe inanition, this was a secondary tumor.

However, she was to be explored, anyway, with a 50-50 chance that there might be a primary lesion. She refused surgery, and it was after this that she was transferred here for follow-up care.

No Bony Lesions

However, on the chest film at Hotel Dieu, the nodules in the right chest were not present. The calcified fibroids in the uterus were present. No bony lesions were detected.

Prior to her hospitalization in November, she had been admitted to the hospital sometime early in the spring for general work-up, with complaints of constipation.

Barium enema at that time revealed nothing more than diverticulosis. She had worked for 35 years at the Acine Laundry and, up until the time that she was completely confined to bed, she continued to work,

However, it was later brought out in the history that, just prior to her coming over here, she had seen various "witch doctors" who would come to the house and give her some sort of suggestion therapy.

One came with some sort of electrical box that would stimulate her muscles so that they moved. It was probably on the basis of their suggestion therapy that she developed so great a fear of surgery.

The laboratory studies were done, and you see that most were normal, except that there was a reversal of the A/G ratio.

The elevated temperature was first thought to be due to a secondary infection to the decubital ulcers.

However, the fever did not respond to antibiotics, and she began to have gross hematuria.

Differential Diagnoses

The differential diagnoses would be: first, a primary cord tumor at the level of L-5 or, perhaps, T-10 or T-11, in view of the sharp demarca-

tion of the sensory damage: second, a tumor at the same level.

I am in favor of the second diagnosis because of the increasing pain and the rapid growth which would put pressure on the posterior roots, increasing the pain because of the increased spinal fluid pressure.

The third diagnosis, in view of the fever that would not respond to antibiotics, would be an abscess.

However, the course in the hospital here with the development of nodules in the right lung would certainly confirm the second diagnosis of a metastatic cord tumor.

The primary site probably would be the cardia of the stomach, with direct extension to the pleura, causing a pleural effusion. Second in consideration are kidneys and lungs.

Dr. J. Edward Stern: Films at Hotel Dieu did not show these metastatic lesions in the right lung. We had two cell blocks made from the fluid from the left chest, but neither cell block showed any organisms.

We did make a serious effort to find out what type of lesion this was, before suggesting a laminectomy.

The breasts were examined carefully. The thyroid region and the pelvic organs were examined. The blood globulin was tested, and also the urine for Bence-Jones protein to see if we might be dealing with a myeloma.

None of these efforts to find a primary site of neoplasm were successful.

Not long before we saw this patient, we had seen another, much older than this one, also with a paraplegia, and she proved, at operation, to have a primary extradural intraspinal lesion, which was removed.

She obtained a good recovery of function in the legs, and sphincters, and, so far as I know, is still going along quite well.

Real Question

I think the real question in this case is not the question of a compressing cord lesion. We know that the real question here is whether we are dealing with a primary lesion or a metastatic one.

The current trend of thinking, however, seems to be along a line which, I think, would have horrified all of us a few years ago—namely, that, even if we know that we are dealing with a metastatic lesion producing cord compression with paraplegia and sphincter disturbances, it may be worth while, for the patient's comfort during the remaining weeks or months of life, to decompress the cord.

In this particular case, I did favor a decompression and we would have had it done if the patient had agreed to it.

I would like to hear some other opinions on the idea of laminectomy for decompression in metastatic cord lesions.

As far as the primary site in this case, we did not know what the primary site was at the time she left Hotel Dieu and I don't have any suggestions now as to what it might have been.

Dr. R. J. Bennett: The only reason I saw the patient at all was that some relatives were up here trying to get her to sign some insurance over to them, so I had to come up here and check the patient, and I found her incompetent.

At that time, she was in the terminal phase of her illness and, apparently, there were a few more things being found than when she was at Hotel Dieu.

These findings pointed to a malignant type of illness which had invaded the nervous system.

Of course, by the time I saw her, she was semicomatose, and there were a lot of neurophysiological disturbances which had also caused a psychosis.

The only thing I could do was to declare her incompetent.

The only thing I could suggest was to give her a little supportive treatment to perhaps keep her a little bit more comfortable and to prevent her being too confused and hard to manage.

As a matter of fact, a few days after I had seen her, she did become rather comatose and soon after that, she died.

Clinical Diagnosis: Spinal cord tumor.

Dr. Damiani's Diagnosis: Metastatic spinal cord tumor, probably arising from the stomach.

Pathological Diagnosis: Soft tissue reticulum cell sarcoma extending into the retro-peritoneal space and thoracic cavity; compression and destruction of thoracic vertebrae with compression of the spinal cord; pleural effusion.

Pathological Discussion—Dr. F. P. Bornstein

At autopsy, we found a rather obese, middleaged woman. After the usual evisceration was done one saw a large mass of greyish white tumor tissue which extended from the beginning of the cervical spinal column to about the 10th thoracic vertebra.

This tumor was greyish white, gelatinous, and surrounded the spinal column from all sides.

Upon opening the spinal canal, it was seen that the tumor had produced complete destruction of the 8th and 9th thoracic vertebrae which could be scooped out by hand.

The underlying spinal cord was compressed and atrophic below this point, due to the presence of the collapsed vertebra. No tumor was visible inside the meninges or inside the spinal cord.

In addition, the tumor had invaded the left pleural cavity and the pericardium. Dissection of the major organs, such as the heart, lungs, liver, spleen and kidneys, failed to reveal any primary tumor.

A careful search, therefore, was made of all other organs to find a primary tumor. Both breasts showed fibrocystic disease and a small tumor which, microscopically, proved to be a benign fibroadenoma.

A benign leiomyoma was present in the serosa of the stomach. One of the ovaries contained a benign teratoma, and there were some calcified leiomyomas of the uterus.

In addition, a small greyish white tumor about 4 mm. in greatest diameter, was found in the thyroid, which I expected to be the primary malignant lesion. A similar case was reported and observed by me in Providence Hospital a few years ago.

However, on microscopic examination, this proved to be a benign adenoma of the thyroid without any connection with the major lesion. Microscopic examination of the tumor (Fig. 1) makes it quite obvious that this is a primary sarcoma.

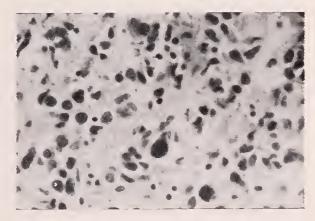


Fig. 1. Sarcoma with tumor giant cells.

One prominent feature of this sarcoma is the large giant cells associated with hyperchromatic nuclei, which strongly resemble Sternberg cells.

Personally. I do not like to make a diagnosis of Hodgkin's disease solely because of the presence of Sternberg cells, if the rest of the lesion is simply a tumor.

This is especially so if the tumor cells grow in close connection with the reticulum | Fig. 2|.

It is my opinion that so-called Sternberg cells can be found in tumors which otherwise, histologically and grossly, behave like reticulum cell sarcomata.

It is, therefore, my opinion, that we are dealing, in this case, with a primary reticulum cell sarcoma of soft tissue which destroyed several vertebrae and compressed the spinal cord and, in addition, produced invasion of the pleural and pericardial cavities.

It is interesting to know that this patient had at least four additional small benign tumors.

Before paying too much attention to these, it should be admitted that we do not make such careful search for small benign tumors in routine autopsies.

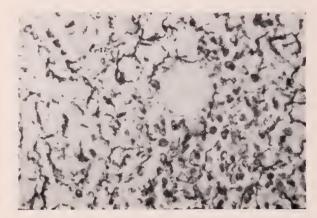


Fig. 2. Reticulum stain showing relationship of cell to reticulum.

Dr. Morton H. Leonard: Did the tumor compress the spinal cord by invasion, or just by collapse. And, if the compression was caused by collapse, why was the collapsed vertebra not visible on X-ray?

Dr. Bornstein: What is the time interval between the X-ray and the death of the patient?

Dr. Ravel: The patient died in January, and this picture was taken December 18th.

Dr. Leonard: For you to have these cord changes and this with the positive Babinsky and signs of extra-dural pressure around the cord, I just don't see what the mechanism would be without any infiltration.

Dr. Bornstein: Regardless of that, the patient had histologically easily demonstrable changes of demyelinization below this level; and it also should not be forgotten that the myelogram taken at Hotel Dieu, long before death, showed a definite compressing lesion of the spinal cord at this level.

Dr. Stern: Just one or two more points here I think we ought to remember. In a situation of this kind, we ought to think not only of a direct invasion and compression of the spinal cord, but of serious interference with the circulation of the spinal cord, especially venous stasis, as a factor in producing distortion and disorganization of the cord.

We do know this about the neuropathology of Hodgkin's disease: where you have an obvious destruction, the thing that causes damage to the spinal cord in venous stasis is severe circulatory disturbance, and not direct compression or invasion.

Dr. Leonard: I believe there is a second factor, such as formation of a dumbbell tumor between the extra-dural space and cord, as seen in tuberculous abscesses which exert extrinsic pressure on the cord.

Dr. Stern: But it is an interference with the venous return, we think now, that causes disorganization of the cord.

Dr. Leonard: Well, without any direct invasion of the cord, and without any gibbus formation, I just don't understand the mechanics of it.

Dr. Stern: With a cold abscess, and with compression and occlusion of the veins which drain the cord, you can get an infarction of the cord.

Dr. Leonard: Was there tumor in the extradural space?

Dr. Bornstein: No.

Dr. Stern: You can have severe damage to the cord by invasion of either leukemic or lymphomatous tissue. The other question is this: Dr. Ayub asked why the alkaline phosphatase level was normal in the face of this amount of apparent bony involvement.

My understanding is that the alkaline phosphatase is produced by osteoblasts, so that if there are no osteoblasts, you wouldn't expect an elevation of the alkaline phosphatase.

Dr. Bornstein: It is unfortunate that I can't show any gross picture of such an enormous lesion, but try to visualize a spinal column that is completely surrounded by tumor which, I think, must approximate what happens to bone when you have an aneurysm of the aorta. There is pressure from the outside exerted with collapse of the bone.

Coming Meetings

New Mexico Medical Society, Annual Meeting, Albuquerque, N. M., May 14-16, 1958.

University of Colorado Medical Center, Post-graduate Course, Clinical Hematology, Denver, June 16-21, 1958.

Western Association of Railway Surgeons, annual meeting, Seattle, Aug. 6-8, 1958.

International College of Surgeons, Western Regional meeting, The Riverside Hotel, Reno, Nevada, August 21-23, 1958. For information, write Dr. Leo D. Nannini, 190 Mill St., Reno.

American Fracture Association, annual meeting, Oklahoma City, Oct. 1-3, 1958.

Southwestern Medical Association, annual meeting, Tucson, Oct. 23-25, 1958.

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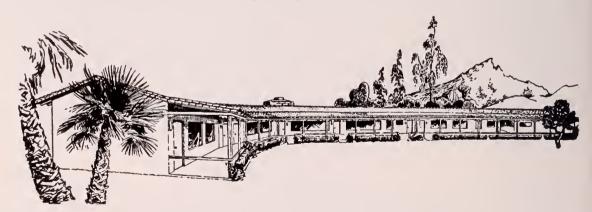
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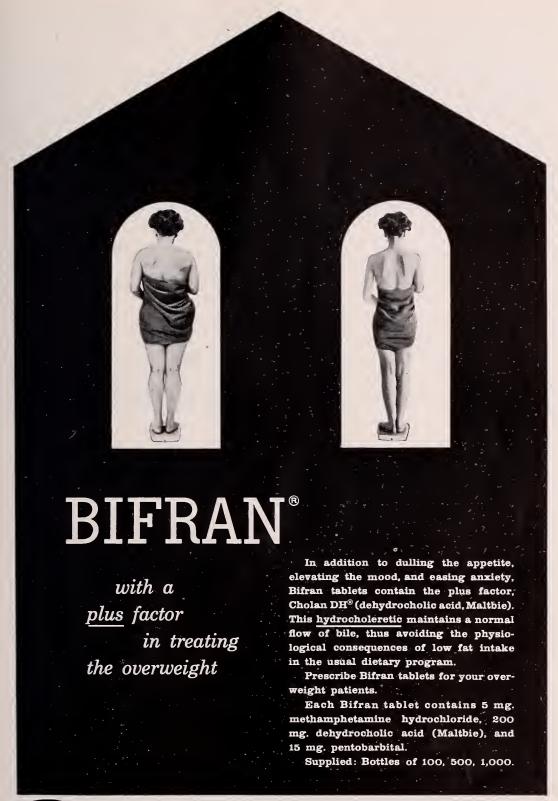
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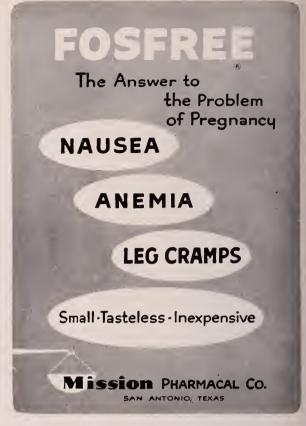
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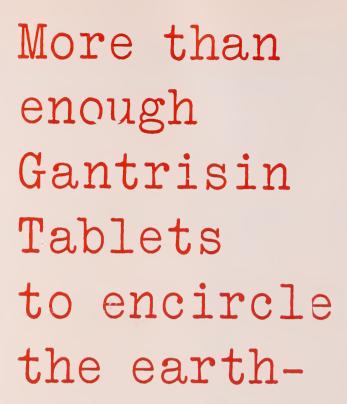
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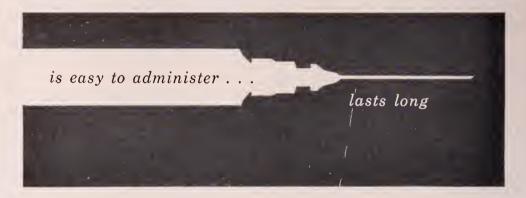
*Rest, Edward J., and Todd, Wilbert R., Textbook of Biochemistry, 2nd Ed. (New York, Macmillan, 1955), p. 522; p. 1074-5.





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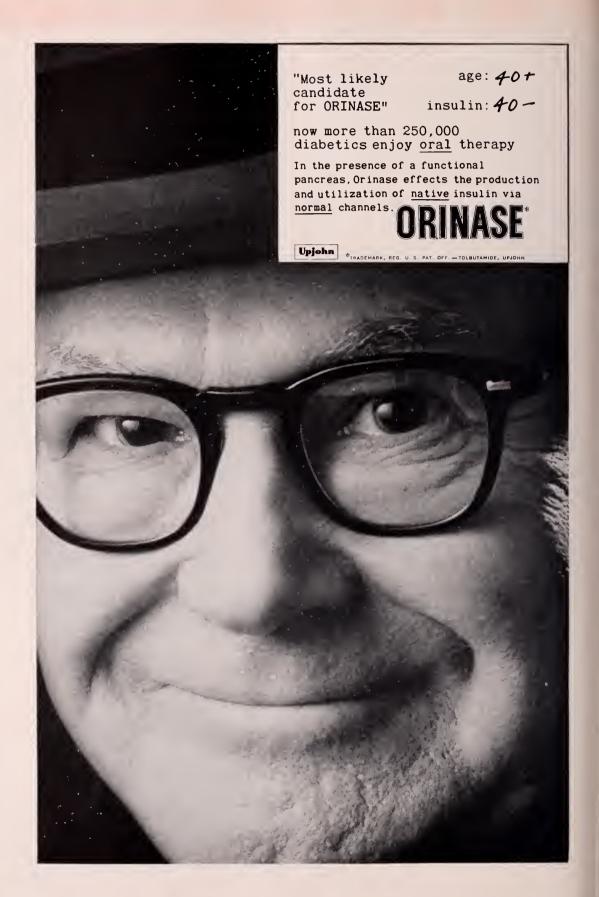
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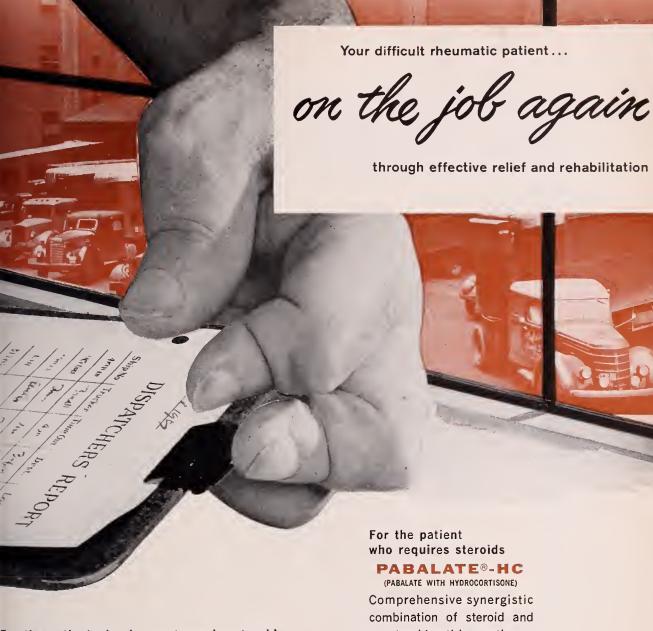
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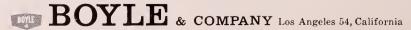
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Southwestern MEDICINE

VOI. XXXXIX .

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No. 6



CURRENT THERAPY

Acute Myocardial Infarction

(continued)

Miscellaneous Factors

By JACK A. BERNARD, M.D., El Paso

Oxygen-Vasodilators-Alcohol-Tobacco-Exercise-Diabetes

In this review let us discuss some of the miscellaneous problems and questions that arise in the treatment of myocardial infarction.

Oxygen Therapy

The effect of oxygen therapy was demonstrated by Borden, Ebert and Wilson. They showed that oxygen therapy is mandatory in those patients with pulmonary edema and shock and it is of questionable value in patients with uncomplicated myocardial infarction. They demonstrated that the oxygen saturation of the hemoglobin of arterial blood in those patients without pulmonary edema or shock was 94.1 percent, whereas the value of those patients with pulmonary edema or shock was 80.8 percent. It is important to administer oxygen by mask rather than by tent. Concentration by mask is 92 percent, whereas by tent the concentration is 40 percent or even lower, if care is not exercised.

Vasodilator Drugs

As regards the vasodilator drugs Russek has shown by the use of the standard exercise test the following:

- 1. The nitroglycerins were the most effective coronary vasodilators.
- 2. Papaverine in doses of one to two grains orally was effective in some patients only.
- 3. Peritrate appeared to be the most effective drug studied for prolonged prophylactic therapy in angina.

Papaverine is expensive and being a narcotic is somewhat bothersome to prescribe and refill. The usual therapeutic dosages of Papaverine are inadequate. Three grains, three or four times daily, must be given, as Russek showed that the usual therapeutic dose showed negligible effect on the electrocardiographic response to standard exercise.

Drugs other than Peritrate appeared unimpres-

sive in protecting against the electrocardiographic changes induced by the standard exercise test, and the protective effect of Peritrate occurred only when it was taken on an empty stomach. Thus it is emphasized that Peritrate be given before meals.

Finally, Dr. Tinsley Harrison describes the use of nitroglycerin ointment locally for intermittent clandication and angina pectoris. (Nitrol ointment).

Hazards of Nitrates

No drug has proved superior to nitroglycerin in warding off or cutting short attacks of angina pectoris, yet nitroglycerin may actually invoke anginal pain and even ST segment changes in some patients. In spite of the coronary vasodilatation produced, the drug may produce tachycardia and a drop in blood pressure which may thereby result paradoxically in myocardial ischemia.

In one study, 10 percent of Russek's patients showed unfavorable electrocardiographic response to the usual therapeutic dose of 1/150 grain of nitroglycerin. An additional six percent also reacted paradoxically when larger doses were employed. In all cases, the electrocardiographic changes induced by nitroglycerin were similar to those observed with the exercise test.

Anticoagulants as Vasodilators

Heparin and dicumeral showed no demonstrable effect on the electrocardiographic response to standard exercise.

Alcohol

Whiskey will prevent or reduce the severity of anginal pain and its sedative action is very beneficial in many patients. It acts by depressing the central nervous system, and by depressing or decreasing anxiety and promoting a sense of wellbeing. There is no evidence that alcohol increases coronary blood flow.

It does not influence the electrocardiographic response to exercise or to the Master's two step test in patients with angina pectoris, although it will prevent or reduce the severity of anginal pain in such patients. (Incidentally the action of morphine is identical to that of alcohol.)

Patients should therefore be cautioned about alcohol, not to overexert after drinking, as alcohol may create a false sense of physical fitness but removes the protection afforded by angina; it relieves the pain but the underlying myocardial anoxia remains unaltered. Finally, whiskey may actually increase the pulse rate, produce ectopic beats or even precipitate paroxysmal tachycardia.

Smoking

Smoking in patients with coronary disease is definitely contraindicated! Russek has shown that tobacco elevates blood pressure, increases the heart rate and thereby augments the work of the heart.

There are reports of patients with angina pectoris and electrocardiograph changes after the use of tobacco. In patients with coronary disease, the ballistocardiograph will often deteriorate after smoking. In such patients, subjective improvement accompanied by ballistocardiograph improvement has been reported after abstinence from tobacco.

Cases of "tobacco heart" are described in which event the electrocardiagrams showed well marked changes after inhalation of tobacco smoke, accompanied by dizziness and chest pain. The ballistocardiographic changes are much more pronounced than the electrocardiographic alterations.

Russek showed that denicotinized cigarettes also showed the ballistocardiographic changes. Interestingly Buff in a series of 400 ballistocardiograms in normal persons under 40 years of age, found 10 percent abnormal ballistocardiograms after smoking.

Diabetes

In the April 1958 issue of Southwestern Medicine in Current Therapy it was pointed out that diabetes predisposes to atherosclerosis. A very interesting article in Diabetes, Vol. 7, No. 2, March-April 1958 by Goldenberg and others pointed out that hypertension was almost twice as frequent among the diabetics studied as among the non-diabetics and that myocardial infarction was also about twice as frequent in diabetics as in non-diabetics.

In nonhypertensives there was no significant difference in the frequence of myocardial infarction between diabetics and nondiabetics. In light of this data it is seen that hypertension is an extremely important factor in the development of coronary sclerosis and myocardial infarction in diabetics. Again it is demonstrated quite vividly the importance of the control of hypertension in order to control coronary sclerosis and myocardial infarction.

Ambulation — Returning to Work

In advising a patient to return to daily life and activity, it might be helpful to discuss the energy costs of various activities. For example, resting supine requires 1.0 calorie per minute whereas sitting up requires 1.2 calories per minute, eating and ordinary conversation require 1.4 calories per minute each. Using a bedpan requires 4.7 calories per minute and showering requires the same.

Thus it is seen if a person can use the bedpan without difficulty he probably could take a shower without any difficulty. Dressing and undressing requires 2.3 calories per minute and usage of the bedside commode only requires 3.6 calories per minute (compare 4.7 calories for a bedpan). Interestingly, walking down stairs requires as much energy as walking up stairs. (Five calories per minute).

Occupational therapy such as leather work, metal or silversmithing require up to two calories per minute, and if a patient could dress and undress and take a shower, he could engage in such activities. Drving a car, for example, requires 2.8 calories per minute. Swimming, golfing, dancing and gardening are all about the same: requiring five calories per minute (about the same as walking up and down stairs). Such calculations may be helpful in advising a patient as to the amount of activity he may undertake.

Summary

In summary, oxygen therapy is mandatory in those patients with pulmonary edema and shock and may be of value in other patients with uncomplicated myocardial infarction. Nitroglycerin is the most effective coronary vasodilator. The dosage of papaverine usually prescribed is inadequate. Larger doses should be used. Peritrate is an effective vasodilator but must be given on an empty stomach. The hazards of nitrates are discussed. Alcohol is useful for its sedative action. Smoking in coronary patients is definitely contraindicated. Hypertension is an extremely important factor in the development of coronary sclerosis and myocardial infarction in diabetics.

THE PRESIDENT'S COLUMN

Halogens Frequent Cause of Acneiform Eruption

By Louis G. Jekel, M.D., Phoenix

The dermatologist is rather frequently confronted with the problem of the adult patient, usually a young matron, with a mild to moderate-

ly severe acne of rather recent origin.

Dr. Louis G. Jekel

One factor to be considered in such a case is the possible ingestion of a bromide or an iodide, for these two halogens frequently cause an acneiform eruption.

Often, when queried about drug ingestion, the patient states that she is taking no drugs of any kind, but "only a little thyroid."

Investigation has revealed the following facts about various thyroid preparations:

- 1. All thyroid substance contains iodine (0.2 percent is required in U. S. P. preparations.)
- 2. Some thyroid preparations contain added iodine.

It is my clinical impression that those preparations which limit the iodine content to 0.2 percent do not usually produce an acneiform eruption. On the other hand, those preparations which contain added iodine can and do, in susceptible individuals, produce such an outbreak.

It is a point worth considering. Sometimes a mere reduction in dosage will solve the problem. Sometimes it is necessary to discontinue the thyroid entirely. The case must be individualized. It is amazing to note the number of patients (usually women) who take thyroid regularly but have not consulted their physicians for several years. Often the physician will agree that thyroid is no longer necessary.

Another source of acne-producing iodine is various vitamin preparations with added minerals. Iodine in the form of potassium iodide is present in many of these preparations in the amount of 0.15 mgm, per capsule.

Therefore, when a physician encounters a patient with a recently developed acne, especially an adult patient, he would do well to investigate the possibility of halogen ingestion, thinking especially of thyroid and multiple vitamin preparations.

Dr. Womack Is New Chief Surgeon at Fort Bayard

Dr. John H. Mohardt, former Chief of Surgery for the Veterans Administration Hospital at Fort Bayard, is now in Washington, D.C., where he is the Assistant Director of Surgery for the Veterans Administration which comprises 172 hospitals and medical facilities with 65 regional hospitals.

His position at Fort Bayard has been taken by Dr. Carroll L. Womack, who practiced medicine for 29 years in Carlsbad, N. M., and who is the past president of the New Mexico Medical Society and Eddy County Medical Society.



MEETINGS

Dr. Levy of Fort Worth
New President
Of Texas Orthopaedic
Association

Dr. Louis J. Levy

TEXAS ORTHOPAEDIC SPEAKERS—Among speakers at the Texas Orthopaedic Association Meeting in Houston April 21 were, left to right, Dr. Joe Woodward, Waco; Dr. Allen F. Voshell, Baltimore; Dr. Ruth Jackson, Dallas; Dr. R. A. Murray, Temple, who was elected vice-president of the Association; Dr. Louis J. Levy, Fort Worth, new president; and Dr. Charles F. Clayton, Fort Worth.



Dr. Louis J. Levy of Fort Worth was elected president of the Texas Orthopaedic Association at its annual meeting in Houston April 21.

Other new officers were Dr. R. A. Murray. Temple, vice-president, and Dr. Margaret Watkins, Dallas, secretary. Dr. Watkins is the immediate past president of the organization.

The 1959 meeting will be held in San Antonio in conjunction with the annual meeting of the Texas Medical Association at a date to be announced, with Dr. John Hinchey of San Antonio as program chairman.

Guest Speaker

Guest speaker at the meeting was Dr. Allen F. Voshell of Baltimore, professor of Orthopaedic Surgery at the University of Maryland Medical School, who spoke on "Clinical Features Obtained from Anatomical Studies of the Knee". Other speakers were Dr. Levy, Fort Worth; Dr. Isaac S. McReynolds and Dr. Billie D. Burdeaux, Jr.. Houston; Dr. Louis W. Breck, El Paso; Dr. Paul Harrington, Houston; Dr. Charles F. Clayton, Fort Worth; Dr. Ruth Jackson, Dallas; Dr. R. A. Murray, Temple; Dr. Frank F. Parrish and Dr. John

G. Andrew, Houston; Dr. Joe Woodward, Waco; Dr. Allen F. Voshell, Baltimore; and Dr. Joseph Barnhart, Houston.

Born at Fort Worth Dr. Levy received his B.A. from the University of Texas and his M.D. from the University of Texas Medical Branch at Galveston. He interned at Michael Reese Hospital in Chicago and took his residency at Los Angeles County General Hospital and in the Scottish Rite Crippled Children's Hospital in Dallas.

Emerges As Major

Dr. Levy began the practice of medicine in Fort Worth in 1942 and then entered the Armed Forces for three years serving in the Mediterranean Theater with the 40th Station Hospital and emerging with the rank of major. He resumed his practice in Fort Worth in 1945.

He is a member of the American Academy of Orthopaedic Surgery, a Diplomate of the American Board of Orthopaedic Surgery and a Fellow in the American College of Surgeons. He is a member of the Western Orthopaedic Association. He is associated in Fort Worth with Dr. C. P. Lipscomb, Dr. H. H. C. McDonald and Dr. K. E. Reidland.

OTHER ORTHOPAEDIC SPEAKERS—Also speaking at the Texas Orthopaedic Association Meeting in Houston were, left to right, Dr. Frank F. Parrish, Houston; Dr. Isaac S. McReynolds, Houston; Dr. Edmund Cowart, Houston, program chairman for the meeting; Dr. Louis W. Breck, El Paso, managing editor of Southwestern Medicine which is the official publication of the Texas Orthopaedic Association; Dr. Joseph Barnhart, Houston; and Dr. Billie D. Burdeaux, Jr., Houston. Others participating in the program who are not in the photographs were Dr. Paul Harrington, Houston; and Dr. John G. Andrew, Houston.



Ruidoso Summer Clinic

Sponsored by the New Mexico Chapter of The American Academy of General Practice July 21 - 24, 1958 — Navajo Lodge, Ruidoso, New Mexico

Faculty	Tuesday, July 22, 1958		
Lubchenco, Lula O., M.D., Pediatrician in	Hossley, W. J., M.D., Immediate Past President,		
Charge, Premature Infant and Full Term Nurs-	Moderator		
eries; Assistant Professor, Department of Pedi-	Medical Complications of Pregnancy,		
atrics, University of Colorado School of Medi-	R. T. White, M.D. 9:00- 9:45		
cine Silver, Henry K., M.D., Professor, Department of	Symptoms of Illness in the Newborn, L. O. Lubchenco, M.D. 9:45-10:45		
Pediatrics, University of Colorado School of	Management of Infection in the		
Medicine	Newborn, H. K. Silver, M.D.		
White, Robert T., M.D., Assistant Professor, De-	Intermission 10:45-11:00		
partment of Obstetrics and Gynecology, Uni-	Endometriosis and/or Pelvic Pain,		
versity of Colorado School of Medicine	R. T. White, M.D. 11:00-11:30		
Williams, Ben C., Assistant Clinical Professor,	Abnormal Bleeding.		
Department of Obstetrics and Gynecology, University of Colorado School of Medicine	B. C. Williams, M.D. 11:30-12:00 Round Table Luncheon,		
Bagwell, John S., M.D., Clinical Assistant Pro-	Moderator, Leland S. Evans, M.D. 12:15		
fessor of Internal Medicine, Southwestern Med-	Guest Speakers:		
ical School	Lubchenco, Lula O., M.D.		
Daily, William M., M.D., Clinical Assistant Pro-	Silver, Henry K., M.D.		
fessor of Internal Medicine, Southwestern	White, Robert T., M.D.		
Medical School	Williams, Ben C., M. D.		
Gill, Dan C., M.D., Clinical Assistant Professor of	Wednesday, July 23, 1958		
Surgery, Southwestern Medical School Shannon, Manning B., M.D., Clinical Assistant	Peacock, W. H., M.D., President-Elect, Moderator Recent Advances in Cardiac Disease,		
Professor of Surgery, Southwestern Medical	William M. Daily, M.D. 9:00- 9:45		
School Surgery, Southwestern Recalcular	Hemorrhage from the Gastro-Intestinal		
Monday, July 21, 1958	Tract, John S. Bagwell, M.D. 9:45-10:30		
Rivas, J. A., M.D., President, New Mexico Chap-	Recess 10:30-10:45		
ter of the American Academy of General Prac-	Surgery of the Peptic Ulcer,		
tice, Moderator	Dan C. Gill, M.D. 10:45-11:30		
Introduction, L. O. Lubchenco, M.D. 9:00-9:15	Penetrating Trauma to the Abdomen,		
The Need for Study of Prematurity and Infant	Manning B. Shannon, M.D. 11:30-12:15		
Mortality in This Region, "High Altitude Babies", Socio-Economic Factors and Prenatal	Round Table Luncheon, Moderator, C. P. Bunch, M.D. 12:15		
Care	Guest Speakers:		
New Mexico Maternal and Infant	Bagwell, John S., M.D.		
Mortality, A. R. Pruitt, M.D. 9:15- 9:45	Daily, William M., M.D.		
Indications for and Complications of 9:45-10:30	Gill, Dan C., M.D.		
a) Induction of Labor	Shannon, Manning B., M.D.		
b) Instrumental Delivery	Cocktail Hour 7:00 P.M.		
c) Cesarean Section Williams, Ben C., M.D.	Banquet Navajo Lodge 8:00 P.M. Thursday, July 24, 1958		
Intermission 10:30-10:45	Thursday, July 24, 1958 Brown, F. R., M.D., Secretary, Moderator		
Practical Management of Resuscitation,	Physiological Principles Involved in the		
H. K. Silver, M.D. 10:45-11:15	Management of Shock and Hemorrhage,		
The Obstetric and Pediatric	Manning B. Shannon, M.D. 9:00- 9:45		
Management of 11:15-12:00	Diseases of the Bile Ducts and Pancreatitis,		
a) Diabetes	Dan C. Gill, M.D. 9:45-10:30		
b) Intrapartum Infection	Recess 10:30-10:45		
c) Blood Incompatibilities R. T. White, M.D., H. K. Silver, M.D.,	Functional Diseases of Gastro-Intestinal Tract, John S. Bagwell, M.D. 10:45-11:30		
L. O. Lubchenco, M.D.	Hypertension,		
Business Meeting and Luncheon 12:15	William M. Daily, M.D. 11:30-12:15		
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ORTHOPAEDIC SURGERY NOTES

Dr. Russell D. Harris of Oklahoma City presented a very interesting article at the last A. F. A. meeting. In this day of prostheses it is interesting to discuss the restoration of the patient's own femoral head and fracture to normal. The individual's own hip joint may be superior to that in substitution prosthetic procedures.

It is always a good idea to seriously consider the restoration rather than the substitution. There are circumstances which may favor the prosthesis, but after careful consideration the circumstances may favor the restoration procedure.

Actually this editor has an impression that there is a high incidence of union of femoral neck fractures in his practice. He does not hesitate to open the capsule in order to obtain an accurate reduction.

The removal of transverse bony fragments within the fracture site, the de-rotation of head, the re-alignment accurately of the fracture site plus the firm fixation of the fracture, all aid in obtaining union.

With the open procedure one can view the fracture and test it under direct vision at the close of the fixation procedure. If there is movement, additional fixation is felt indicated.

The use of a tibial cortical strip through a drill hole usually gives good fixation. Even bone bank bone seems to function satisfactorily. Threaded screws or tough pins can also be applied in addition to the Smith-Petersen nail.

Degeneration

Another interesting feature is that degeneration may occur in the femoral head at a later date after obvious union has taken place. If the patient merely continues crutch walking and either absent or partial weight-bearing on the affected side, the head may eventually recover and the patient may have a hip which is every bit as good as that obtained in a prosthesis.

Actually the younger the patient, the more conservative the treatment should be. Very young individuals with femoral neck fractures may be very difficult to nail. The nail seems to bind in the trochanteric and distal neck area. Multiple pins and possibly a spica cast may be quite superior in teenage groups.

The paper by Dr. Harris was very well received at the national meeting. It was well presented. Incidentally, the foregoing remarks are in no way connected with the following paper. The editor (W.C.B.) assumes full responsibility.

Dr. Harris very kindly submitted the following summary.

"The Use of Bone Grafts in Fractures of the Femoral Neck"

Assured methods for obtaining union in femoral neck fractures remains a problem.

However, 37 cases of femoral neck fractures were reviewed and it was found that nine of these were fresh fractures, 18 were established non-unions and 10 were impending non-unions. In these cases closed osteosynthesis procedures were performed and were reviewed for this paper. The grafting time varied from immediate procedures associated with initial nailing to procedures performed as late as 23 months after injury. All of the procedures consisted of grafts inserted through the neck, across the fractureline into the head.

The average healing time was $5\frac{1}{2}$ months. Necrosis of the head occurred in four cases and were classified as failures. Excellent results were obtained in 14 cases and good results in 19 cases.

Autogenous Pegs

Autogenous pegs of tibial bone were used in conjunction with threaded wire fixation and gave the best results. Autogenous iliac bone was not satisfactory. Autogenous fibula bone was satisfactory but inferior to tibia. Bone bank bone was less satisfactory. The placement, type and size of the graft were especially important. Adequate fixation was mandatory.

The patient's age and sex had little effect. Multiple procedures (trauma), and penetration of the head by drill heads, guide pins or grafts adversely affected the outcome. The grafts should be placed in the center and inferior third of the neck and head for the best results. The femoral head must be viable and not ankylosed before grafting. Displacement of the distal fragment should not be extreme.

Conclusions

1. Osteosynthesis in femoral neck fractures is a justified procedure.

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2. This procedure should be re-appraised as a method of preserving the head of the femur as an articulating unit with re-constitution of normal anatomy and the procurement of union as the primary objective in so far as the mechanical and physiological status if the hip will allow.

3. With impending non-union nothing is gained by further procrastination. Grafting at this time

will generally insure union.

4. Multiple procedures, particularly multiple nailings have adverse effect.

5. Technique must be exact. Results are generally favorable with precise, accurate, gentle technique.

Discussion by the Orthopaedic Editor

Many elderly patients in whom a prosthesis is felt best may not be able to get out of bed, as some of the cardiacs have to be kept in bed. Many of them cannot get up and move about well anyway. Therefore, it makes little difference whether a prosthesis or a reduction and nailing or fixation are carried out on the fractured femoral neck. Some of these cases may improve later on and by that time the femoral neck fracture may be united. Frankly a united femoral neck fracture is probably a better result than a prosthesis.

In the younger age group from 50 on down to the teenage or younger, more conservative measures are certainly indicated. These patients may very well outgrow or wear out a hip joint prosthesis. They are young enough to withstand immobilization of most any type. Closed reductions, blind pinning, the grafting as outlined excellently in the above summary certainly should be seriously kept in mind by all those who treat femoral neck fractures.

Mechanism of The Erythropoietic Effect of Cobalt

Goldwasser, E.; Jacobson, L. O.; Fried, W. and Plzak, L.: Science 125:1085 (May 31) 1957.

It has long been known that cobalt ion increases the rate of erythropoiesis and eventually produces and maintains a polycythemia. More recent work has demonstrated that the earlier suggestion that cobalt exerted its effect by making the bone marrow anoxic is untenable. With increasing attention being paid to the role of the plasma factor, erythropoietin, in the control of erythropoiesis, and with the availability of simple, short assays for this hormone, the authors have investigated the possibility that cobalt may be effective through erythropoietin production. The data presented indicate strongly that cobalt enhances red-cell production by increasing formation of erythropoietin.

Subcutaneous Injections

Male rats were given subcutaneous injections of Co ⁶⁰ Cl₂. Ten hours later, the animals were bled and enough blood withdrawn so that 20 ml of "cobalt plasma" was available for assay. The amount of cobalt remaining in the plasma was 0.21 micromole/ml. The cobalt plasma was assayed by the Fe ⁵⁹ incorporation method in starved rats using normal plasma with the same amount of CoCl₂ as the control. The incorporation of Fe⁵⁹

into the red blood cells of rats that had been treated with these preparations of plasma was compared with that of rats treated with plasma from animals made anemic by phenylhydrazine.

Pronounced Increase

The pronounced increase in the incorporation of Fe⁵⁹ which was produced by the cobalt plasma cannot be the result of the presence of a small amount of cobaltous ion but can be interpreted as being the result of an increased amount of erythropoietin in the plasma. When erythropoietin has been characterized more fully, it will be possible to determine whether cobalt plasma contains the factor identical with that found in anemia plasma.

The authors accumulated evidence showing that certain of the properties of erythropoietin in anemic plasma are also common to those of the active factor in cobalt plasma.

While these parallelisms are not conclusive evidence that the material in cobalt plasma is identical with that in anemic plasma, they suggest that both types of plasma contain erythropoietic factors with grossly similar properties.

APHORISMS and MEMORABILIA

Truths and Concepts Concerning The Gastro-Intestinal Tract

(continued)

- 27. "It is certain that implication of the lung is more frequent in amoebic abscess than in abscess due to other causes, whether of dysenteric origin or not, and this is attributable to the frequent situation of such abscesses at the extreme upper part of the right lobe of the liver."—C. Allbutt and H. Rolleston, A System of Medicine, MacMillan & Co., London, 1897, vol. 4, p. 162.
- **28.** Remission of symptoms is unfortunately a common occurrence in many acute abdominal disorders, but perhaps in none is it so marked and dangerous as in extravasation of bile. Omental adhesions form, and for a time easily stop the progress of the bile which is under low pressure."—Z. Cope, Clin. Researches in Acute Abdom. Diseases, Oxford Univ. Press, New York, p. 154.
- 29. "Diabetes resembles tabes dorsalis in three points: loss of knee jerk, perforating ulcer of the foot, darting pains in the legs." (S. Gee).—J. A. LINDSAY, Med. Axioms, Aphorisms & Clin. Memoranda, H. Lewis & Co., London, 1923, p. 173.
- **30.** "I am sure any patient with jaundice can have from time to time positive guiacs in the stool." —Tracy Mallory, New England J. Med., 218: 1074, 1938.
- **31.** "In the aged, symptoms of biliary colic are often masked, being often merely a heavy feeling in the region of the liver, some sickness, slight jaundice, delirium and cerebral symptoms."—J. Charcot, Clinical Lectures on Senile & Chronic Diseases, New Sydenham Soc. London, 1881, p. 36.
- **32.** "In all cases of abdominal pain, never fail to examine the lungs and gums. The onset of pneumonia or pleurisy frequently closely simulates appendicitis; lead colic may simulate almost any painful abdominal condition."—W. BRICKNER AND E. MOSCHCOWITZ, Surgical Suggestions, Surgery Pub. Co., N. Y., 1906, p. 15.
- **33.** "The presence of marked tenesmus points almost certainly to inflammation of the rectum."—RICHARD CABOT (Source uncertain).

- **34.** "Left-sided chest signs in a patient who presents symptoms of intestinal obstruction strongly suggest diaphragmatic hernia."—O. H. Perry Pepper, Medical Lectures, 1923.
- **35.** "X-ray evidence of acute intestinal obstruction in the small bowel is seen within three or four hours of the onset of obstruction, rarely before."—
 J. Buckstein, Post Graduate Lectures, Bellevue Hospital, 1939.
- **36.** "Segmentation of the appendix (by X-ray) is good evidence of its integrity."—J. Buckstein, loc. cit.
- **37.** "The symptoms of ulcer can be faithfully mimicked by a diseased gall bladder, even to hemorrhage."—George Eusterman, Collected Papers of the Mayo Clinic, W. B. Saunders Co., Phil., 1932, p. 38.
- **38.** "The presence of some degree of hepatitis is commonly noted during operations on the gall bladder, and I think it probable that it produces symptoms, and that in some cases it accounts for the post operative persistence of a clinical picture that resembles that of cholecystitis. It has always seemed to me that when a surgeon removes a diseased gall bladder he must often leave behind in the liver much of the disease he has been trying to cure. For this reason, the wonder to me is not that he sometimes fails to relieve symptoms, but that he so often succeeds in doing so."—WALTER ALVAREZ, Collected Papers of the Mayo Clinic, W. B. Saunders Co., Phil., 1932, p. 109.
- **39.** "Patients and physicians often ask me for my diet for gall bladder disease and I have to admit that I haven't one. I don't know what it should consist of. Physicians commonly tell the patient to avoid fats, but when all the bile is reaching the duodenum it is hard to see why fats shouldn't be digested. Actually, they often are digested perfectly by these patients."—Walter Alvarez, Collected Papers of the Mayo Clinic, W. B. Saunders Co., Phil., 1939, p. 187.

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ORIGINAL ARTICLES

Diagnosis and Treatment of Lead Absorption in Industry*

By Russell Holt, M.D., El Paso

To familiarize you with the problems in lead industry, it will be necessary to give you a brief background of some of the complications encountered. Lead has been used in industry and art for centuries, and for a considerable time it had been known to cause some of the divergent symptoms presented by the lead workers, but not until Tanguerel des Planches 1831 were these findings correlated.

Inorganic lead may enter the human body (1) by way of the respiratory tract in the form of vapor fumes, mists, or dust, (2) by the alimentary tract through ingesting lead or lead compounds in almost any of its forms, or (3) as organic lead compounds it may penetrate the skin, but this last group presents other problems that are not to be considered here.

Vapors from molten metallic lead cause the most dangerous concentration of lead in the air, and exposure may occur when working at lead blast furnaces, over lead pots, from handling molten lead alloys in foundries, molding operations, soldering procedures, or from burning lead paints. Especially may absorption occur when the procedure is prolonged and ventilation is inadequate.

Frequent exposure from lead dust must be considered dangerous unless the quantity in the air is known. Lead dust exposure, out in the open stockpiles, may be safe over a long period of time, but the opposite is true in a poorly ventilated enclosure. An alert safety engineer will always be looking for lead absorption in workers who are exposed to small quantities of lead, and he will occasionally find it in the least suspected areas.

Signs and Symptoms of Lead Absorption

Where lead exposure is known to exist, it is usually no problem to make a diagnosis of lead absorption. When a worker absorbs lead rapidly, which, in some instances, appears to be an indi-

vidual characteristic¹; or, if he is sensitive to relatively small quantities of lead, the diagnosis will be more difficult, because the examiner will feel that it cannot occur so soon. The laboratory will not be of any assistance when a worker is abnormally sensitive to small quantities of lead, and it might be confusing² when it reports small quantities of lead present.

In general practice, when one sees an occasional case of lead absorption, can it be recognized before poisoning occurs? In most instances, one should recognize it in the mild stages of absorption if a careful history is taken. If it has progressed to the intoxication stage, 90 per cent of the cases should be diagnosed2. With the skill available to every physician, one should observe a lead line, wrist drop, or stippled erythrocytes. By a careful differentiation, one may recognize a combination of symptoms characteristic of plumbism. The symptons frequently observed in incipient lead poisoning are muscle cramps, weakness and abdominal cramps. Some failures will occur because of a misleading history, and for that reason every suspicious lead should be followed.

Laboratory Data

A blood count to determine the degree of anemia or to rule out blood discrasias is extremely important in the correct treatment of lead absorption¹. To make a diagnosis, much dependence is placed on finding stippled cells, but, to be of diagnostic value2, the stippled erythrocites must exceed the normal range of 800 to 1,000 stippled cells per million erythrocites upward to around 35,000 to 40,000 per million. Here, variations will depend considerably upon the individual response rather than on the degree of lead absorption¹, and with lower counts the presence of a lead line, weakness, numbness, muscular and joint pains should suggest that lead absorption may be present12. It should be emphasized that doing a good stippled-cell count requires careful work on the part of the laboratory technician.

^{*}Read before the Texas Traumatic Surgical Society.

This determination of the amount of lead in the urine or blood is tedious and requires a good laboratory with skilled technicians, both to collect and assay the urine, so that contamination does not occur. To avoid error, one should repeat positive lead findings, unless the physical signs substantiate the chemical findings.

It is considered that a quantity of 0.12 mgm/ liter of urine is the upper limit of normal. People who are exposed to lead during the course of their work will absorb some lead, and this is shown by an increase in the urinary lead value. Urinary lead values between 0.12 and 0.20 mgm/liter indicate an increase in lead absorption and may not be a cause of, or accompanied by, symptoms. Urinary lead values over 0.20 mgm/liter indicate greater lead exposure, and are a warning that the individual should be watched for symptoms which might be due to lead. The question of individual susceptibility to lead is a vexing one, and, as you can see from Table 1, there were six individuals with a urinary lead value of over 0.35 mgm/liter who had no symptoms due to their lead absorption.

Practically every 90 days the urine should be routinely collected from all workers having any known exposure. Spot specimens offer fewer chances for it to get contaminated, and a specimen with neither low or high specific gravity is desired². The urine is analyzed by the dithizole method¹¹. If it is found to be positive for lead, it is checked by the Polarographic Method. As mentioned before, these procedures require skill and should be done in a well-equipped laboratory.

Lead in the blood² will run about one-half the values found in urine and runs a close parallel to the findings in the urine. Normal values are found up to 0.06 mgs/100 gms of whole blood, and an excess of 0.07 mgm/100 indicates recent lead exposure, while values over 0.10 mgm/100 gms show the exposure to be considerable. In a severe industrial exposure, the lead content in the blood may reach 0.50 mgm/100 gms. Figures higher than this should be considered contamination.

One hundred and one (Table I) lead absorption cases are presented, showing the symptoms complained of by the worker. As will be seen, the number of symptoms does not compare with that found in most text books on toxicology. This is due to not being able to break down the various detailed symptoms presented by non-English-speaking workers. The policy of doing routine lead determinations enables one to know who is absorbing lead, and treatment can be started before serious physical signs or symptoms appear. Thirty-five individuals showed excretion in excess to 0.29 mgm/

liter. This concentration is dangerous if allowed to persist. Eighteen of these presented no toxic symptoms and only four showed serious involvement. A brief case history of one of them will be given later.

Lead Concentration Mgm/Liter of Urine

	0.00	0.20	0.25	0.30	0.35	Total
	to	to	to	to	+	
	0.19	0.24	0.29	0.34		
Number of						
Workers	3	41	22	18	17	101
Rheumatic Pair	1 3	5	6	4	3	21
Muscle Cramp	2	10	6	2	5	25
Abdominal Cras	mp	2		1	8	11
Weakness	•	3			2	5
Constipation		2				2
Headaches		1	1			2 2 6
Pallor		2		1	3	6
Lead Line		2				2
Vomiting		1			2	$\frac{2}{3}$
No Symptoms		27	10	12	6	55

TABLE I. An arbitrary division of workers according to the amount of lead excreted in the urine, showing how the amount of lead excreted and the symptoms compare.

It is known that the lead line appears more frequently where there is considerable gingivitis present¹, but the workers of today have better oral hygiene than during the pre-world-war period, and their living standards are much higher, so they are better nourised. Therefore, the lead line is seen less frequently. No doubt, being well nourished has much to do with protecting workers exposed to lead and may partly account for the absence of symptoms in workers showing considerable lead absorption.

Common Symptoms

The most common symptoms noted are weakness, rheumatic pains and muscle cramps. These symptoms often apear where there is low lead excretion. This has been quite confusing because it was thought to be rheumatic in origin, in which case, arthritis would be appearing much more frequently in lead workers than in non-lead workers. At first, it was felt that few toxic symptoms from lead absorption occur in workers excreting less than 0.29 mgm/liter, so intensive treatment was not started until it reached that concentration.

When endeavoring to find the cause of the rheumatic pain and muscle cramp, findings were invariably against its being arthritis, and they did not respond to arthritic treatment or to treatment for infections or nutritional neuritis. Lead treatment was tried and the conditions were found to respond immediately. As previously stated, these symptoms were appearing in workers excreting

lead from 0.20 mg, to 0.29 mgm/liter. One of this group with symptoms had a concentration of 0.13 mgm and two with 0.17 mgm/liter, yet they cleared up with lead treatment. These persons showed the marked variations in individual susceptibility sometimes found among those exposed to lead.

Previous Instances

Forthy-eight of these workers have had high lead absorption before. Some have been treated at least one time during the year for the past five years. In this group, there is often pallor, weakness, some malaise, occasional headaches, and constipation. Except in those instances where anemia was found, it is difficult to explain the cause of these findings, just as it is difficult to explain the cause of the same symptoms frequently present in the non-lead workers. Blood counts were not done on all the workers treated, so any statistics reported on this finding would be valueless.

Four of this group were hospitalized during the course of treatment, and stippled erythrocytes were not reported on any of them. Several other blood counts were done in the course of treating ambulatory patients, but rarely were stippled cells reported. It appears that, even though stippled cells are reported to be easily recognized, the blood counts done in general hospitals rarely report them, so it is questionable whether one should depend too strongly upon this finding.

Abdominal cramps are a common finding, and any worker presenting this symptom should be thorough examined. When an acute infectious condition is ruled out, a urine determination for lead should be ordered immediately. However, with the high incidence of intestinal infections known to exist throughout the South and Southwest, one should not be misled when considering these symptoms, but should establish the cause, if possible. The abdominal cramps are described as a severe colic-like pain which resembles that of an acute abdomen. From the history given, one should be mindful of a ruptured peptic ulcer, mesenteric thrombosis, or intestinal obstruction. When doing a manual examination, however, the findings are surprisingly few, with the tenderness being mild and no point of tenderness existing.

Treatment for Excessive Lead Absorption

Previously, the treatment for lead poisoning was varied and prolonged. The general purpose was to relieve the patient of his intestinal colic, correcting the anemia, treating the paralysis if it existed, and finally returning him to a remunerative job as soon as possible³. It frequently incurred long periods of hospitalization, a longer period of being

off duty and, finally, not returning to a job where lead exposure was likely².

It was the general idea that no attempt should be made to delead the subject because, in doing so, dangerous nervous and blood disorders result when liberating free lead, even in moderate quantities^{1,3,4}. To prevent this, a high calcium diet and parental calcium were given, endeavoring to immobilze the lead⁶, and have the de-leading accomplished spontaneously over a long period of time. In addition, iron, liver, and vitamins were given regularly as supporting treatment.

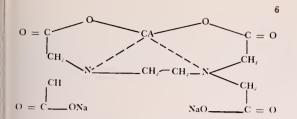
Many lead industries established laboratories to do routine urine determinations, which enabled them to detect lead absorption before any signs of intoxication appeared. In this way, workers could be carefully observed; and, when the concentration approached danger, they could be removed from lead exposure for a few weeks or months and given moderate de-leading or lead immobilization treatment³. This resulted in having practically no lead poisoning, no loss of time from work whenever they could be employed elsewhere in the plant, and in most instances they could return to their same jobs later.

In 1952, much interest was expressed in the possibilities of Calcium Ethylenediamine Tetra-Acetate for treatment of lead poisoning, as well as for poisoning from several other elements^{3 6}. Its study was carried on by most of the national authorities on lead absorption, and Mr. Manfred Bowditch, Director of Health and Safety of the Lead Industries Association, registered the reports so that a centralized and planned study could be made of its uses³.

Ethylenediamine Tetra-Acetate has a structural formula ^{5 6} in which the straight lines represent ordinary Valences, while the broken lines indicate coordinate Valences, and these are responsible for its suppressing ionization.

So, therefore, it is a true chelating agent.⁵ ⁶ Chelation of lead by EDTA produces a compound with these advantages: (1) it is watersoluble, (2) it is nonionizable and (3) it is relatively non-toxic. The lead chelate is reported to be one billion times stronger than the Ca. EDTA combination and results in the exchange of lead for calcium readily, and it is excreted as Lead Ethylenediamine Tera-Acetate Chelate.⁸

Ca. EDTA has the advantages of being relatively non-toxic in therapeutic ^{5 4} doses and when administered, a non-toxic Pb. EDTA chelate is formed which is non-toxic to the brain, nerves or blood. Foreman⁹ reports, however, that it is not lack of toxicity, but that there is a widespread



Calcium Disodium Ethylenediamine Tetra-Acetate

$$PB^{-} + O CA O O PI O + CA^{-}$$

Equation showing the formation of the lead chelate freeing the calcium ion.

difference between the therapeutic dose and the lethal dose. In large doses, it was found to be toxic to the renal tubules and the reticulo-endotheleal cells.

The recommended oral dose is five grams a day for five days and then rest two days, after which the series may be repeated. The 101 cases reported here received orally four grams per day for five days, and a second course was given in from five to ten days after the last dose of the first course. This procedure appears to be safer and fewer disturbances occurred when taking it.

Comments

It has been found when treating lead absorption cases with Ca. EDTA that after treatment the urine lead concentration gradually declines for 14 to 20 days after treatment, when it will level off. Therefore, further treatment was delayed until the lead excretion could be determined without the influence of EDTA before it was started again. It has also been observed that in the treatment for five days, with a total of 20 grams of Ca. EDTA, one can expect the lead excretion in the urine to drop from 0.05 to 0.07 mgm/liter with each course of treatment. The excretion response is somewhat more rapid with a high absorption and, as it approaches 0.20 mgs., the response is less. Treatment was discontinued at 0.20 mgs., except for the three workers who had symptoms at a lower level.

Every one receiving treatment had a urinalysis before each course of treatment, and then other urinalyses were done on the third and fifth days during the five day course. It was found that, with the dosage as given, nine per cent showed albumin or red blood cells at some time during the course of treatment. If this occurred, the second course of treatment was not started until the urine had cleared, which it did spontaneously in all instances. Three persons who had urinary pathology showed it again with the second course of treatment and, as a precaution, the dose was reduced to half for the subsequent treatments.

	Number
Complaint	Complaining
Diarrhea	20
Leg Cramps	6
Abdominal Cramps	8
Vomiting	5
Malaise	2
Weakness	2
Constipation	1
Muscle Cramps Increased	14
Arthritic Pain	1
Urine, Alb—RBC—or Casts	9
(or all 3)	
No symptoms	64

TABLE II—The symptoms that workers taking calcium disodium versenate complained of at some time during the course of treatment.

Table II shows that about 30 per cent of the ones taking oral Ca-EDTA presented some adverse symptoms from the drug. Diarrhea occurred in 20. Muscle cramps occurred in six, and, if they already existed, they were described as being increased in 14 others. Eight complained of abdominal cramps and, in two of these, the cramps were so severe that hospitalization was necessary. In the hospital, intravenous Calcium Disodium Versenate was given without any complaints. The abdominal cramps occurred more frequently in individuals who had a high lead excretion to begin with. One individual could not take even small doses orally, but toook it intravenously without any trouble. These results indicate that oral Ca. EDTA may act as a mild gastrointestinal irritant in some individuals. It is doubtful that the symptoms were produced by the chelated lead.

Case Report

J. M., a 35-year-old Mexican laborer, who worked in an area where he was exposed to lead dust, came in January 22, 1957, complaining of rather severe abdominal cramps and general aching of the arms and legs. His temperature was 98.4F and he looked pale and exhausted. The blood pressure was 128/96 and the pulse 84. The nose and throat were normal. The gums were healthy and no lead line could be seen. The lungs and heart were normal. The abdomen was scaphoid type, and the liver and spleen were of normal size. There was some tenderness about the um-

bilical area, but no mass was palpable, and the tenderness was less severe than was the cramping pains he described. The reflexes were normal and no wrist or foot drop was present.

A urine lead determination was reported February 11, 1957 as being 0.45 mgm/liter. Ca. Disodium Versenate, 1 gm. four times daily, was started. After taking about six doses, he developed serve abdominal pain and vomited. The drug was discontinued for 24 hours and started again. This time, the severe abdominal pain and the generalized aching recurred, so he was hospitalized February 15, 1957.

The urine was entirely normal, RBC 3,800,-000, hemoglobin 11.9gms, (70%), WBC 10,500 with segmented cells of 55 per cent, basophils four per cent, monocytes 11 per cent, lymphocytes 18 per cent. One premature unclassified cell was present. Intravenous Calcium Disodium Versenate was given, one gm. twice daily for five days. He was symptom-free on the second day and went home on the fifth day. A urine lead taken February 19, 1957 was 0.68 mgm/liter. It is believed the high urinary lead level represented a continuing effect of the Ca. EDTA administration. On March 5th, 1957, after receiving the report of the urine sample taken February 19th, Versenate was given orally and the first dose caused abdominal cramps, so it was discontinued. He was given supportive treatment with hematinic capsules and vitamins. A third urine was taken on the 5th of March, which was reported to show 0.17 mgm per liter of lead in the urine.

This case represents a rather severe lead intoxication. The symptoms are classical, but presented a problem of being sensitive to the Versenate. It has been observed that, when treating lead intoxication, oral Versenate may cause intestinal symptoms, and for this reason two of the four hospital cases had to be hospitalized. The other two were hospitalized because of some other intercurrent development while under lead treatment.

Interpretations of the recorded complaints must be guarded, for many of the workers took the Versenate with some reluctance. If an individual acquired some other condition while taking it, he invariably blamed the Versenate for the way he felt.

Except in individuals showing renal pathology or hospitalized for other symptoms, all the workers were permitted to stay on their regular jobs. If the renal condition was serious, they were removed from lead exposure but were permitted to return after they had spontaneously reduced their lead excretion. Some have received as much as five courses of Versenate to get the lead concentration down to a safe level. They have not experienced any ill effects from taking repeated courses.

The use of Ca. EDTA does not mean that safety factors can be relaxed. The prevention of lead absorption is still the all-important method of protecting the worker. To keep him on the job. and to prevent loss of time because of serious lead absorption is helpful to both the employee and the employer.

SUMMARY

A consideration of lead absorption in industry has been presented, but certain situations and conditions were clarified so that, when emphasis was made on the diagnosis and treatment problems, they could be better understood.

- (1) Lead exposure from fumes, mists or dust presents a definite problem for the engineer, but these are the most common sources from which lead absorption may occur.
- (2) The diagnosis of lead absorption should be made before lead intoxication occurs. Routine determination of lead in the urine, blood studies and evaluations of the signs and symptoms are of most practical value.
- (3) One hundred and one consecutive leadabsorption cases were presented, and an attempt was made to show how the urine lead concentration influenced the symptoms complex and how it formed a basis for treatment.
- (4) Observation was made on these 101 workers when treated with Ca. EDTA. With this treatment, many workers could continue working in lead industry without endangering their health.
- (5) In therapeutic doses, Ca. EDTA may cause mild gastro-intestinal symptoms, and in a few persons renal complications may occur, but these are not serious when detected early.

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MONTHLY CLINICAL PATHOLOGICAL CONFERENCE EL PASO GENERAL HOSPITAL

April 17, 1958

F. P. Bornstein, M.D., Editor — Case No. 1005

Presentation of case by SAUL B. APPEL, M.D., and Antonio Dow, M.D.

History: — Dr. Nathan Kleban:

Jaundice brought a 68-year-old man to the hospital on January 15, 1958. One month before admission the patient first noticed jaundice which steadily deepened, and several days later dark urine and light stools were evident. Itching of the skin bothered him at times. For one week he had a dull pain, which was not continuous in the right upper abdominal quadrant and epigastrium, without radiation and related only to intake of fatty foods.

Jaundice, fever and right upper abdominal quadrant pain had been present for one month in 1946. He was said to have been seen at this hospital in 1950 and to have had "cramps" in 1955. No other pertinent family or past history was recorded.

Physical Examination:

Temperature 100, Pulse 92, Respirations 20, Blood pressure 150/60.

Mucous membranes and skin were icteric. Moist rales were heard over the lower lung fields. The abdomen was pendulous and soft. The liver was described as being four finger-breadths below the right costal margin. Exquisite tenderness was said to have been elicited in the gall bladder region. There was slight pitting edema of the lower extremities.

Hospital Course:

Maximum daily temperatures were usually close to 102. Only on the seventh day was there no elevation. Light yellow stools were described on the first and second days. Despite fever the patient complained of no discomfort and had a fairly good appetite until the sixth day when he became uncooperative, had chills and fever of 104.

Tetracycline in a dosage of 100 mg. intramuscularly or 250 mg. orally had been given since admission and was continued throughout his hospital stay. With aspirin, diphenhydramine, and I-V fluids the patient felt better and was again cooperative, although on the ninth day, when his temperature rose to 102.8, he refused medication for a while and threatened to leave the next day.

One unit of blood each was given on the twelfth and thirteenth days. On the morning of the fourteenth hospital day the patient complained of chest pain, struggled to breathe, sweated, was cold, appeared cyanotic. Oxygen, morphine and 1-norepinephrine were given. Breathing became shallow, pulse faint, both were irregular, and the patient died five hours after his chest pain started.

Laboratory Findings:

X-rays: 1-17-58: Chest, gall bladder and upper GI: "Following the oral administration of telepaque there is non-visualization of the opaque media within the gall bladder, most probably on the basis of calculous cholecystitis.

"The esophagus was patulous to barium liquid." There was no evidence of hiatal hernia. The stomach was somewhat displaced anteriorly by a soft tissue mass, possibly hepatic in origin. A lesion of the pancreas cannot be entirely excluded. Peristalsis was vigorous and effective.

"There were no significant gastric addition or subtraction defects. Calcification is present in the walls of the abdominal aorta secondary to peripheral arteriosclerotic vascular disease.

"The duodenal bulb filled and emptied regularly. There was an extrinsic compression deformity suggestive of an enlarged gall bladder on the duodenal cap. There was no widening of the duodenal loop. At three hours a trace remained within the stomach and the head of the colon was in the ascending colon."

Conclusions: Healthy chest; Findings consistent with pancreatic cyst; A tumor of the liver cannot be entirely excluded.

Blood count: 1-21-58 — Hb. 9.1 gms. Ht. 34 percent, WBC 4,500.

Prothrombin time: 1-21-58 — 54 percent ac-

Urinalyses: 1-16-58 — S.G. 1.009, 2+ Albumin, Sugar neg., reaction acid, bile positive, few sq. Ep. cells, few bacteria. 1-20-58 — Bile positive. 1-21-58 — Quantitative Urobilinogen, 0.42 E. units / 24 hours.

Thymol turbidity: 1-16-58 — 22.5 units.

Blood chemistry: Alkaline phosphatase — 9.0 units.

(1-16-58) Total protein — 2.35 gm. percent. A/G ratio — 2.1/1. Van den Bergh direct — .25 mg. percent. Total — 10.4 mg. percent. Glucose—105 mg. percent. Urea nitrogen — 18.7 mg. percent. Cephalin flocculation — 24 hours — 3+40 hours — 3+

(1-20-58) Amylase — 109. Icterus index — 3.41. Total protein — 8.8 gm. percent. Albumin — 5.4. Globulin — 3.4. A/G ratio — 1.6/1. Van den Bergh Direct — .6 mg. percent. Indirect — .24 mg. percent.

(1-23-58) Total protein — 6.5 gm. percent. Albumin — 4. Globulin — 2.5. A/G ratio — 1.06/1. Van den Bergh — Direct 3.0 mg. percent. Indirect — 12.0 mg. percent.

Dr. Saul B. Appel:

Briefly, this is a 68-year-old man with a previous history of right upper quadrant pain, jaundice and fever in 1946. The previous admission record in 1950 was unobtainable. He had been sick a month prior to admission with increasing jaundice and some pain in the upper right quadrant.

Examination revealed a jaundiced, chronically ill man with some rales over the lung bases, liver enlarged four finger-breadths and tenderness in the gall bladder region. There was some pitting leg edema.

Hospital course was febrile up to 102° except for the seventh day. There were light yellow stools initially. The patient was treated with antibiotics, aspirin, benadryl for pruritus.

He was scheduled for surgery and built up with blood transfusions on the twelfth and thirteenth days. On the fourteenth day he developed chest pain and dyspnea, shock, and died within five hours. Dr. Melton, will you review the X-ray findings, please?

Dr. William Melton:

He had an enlarged heart and no evidence of an active infiltration in the lung fields. His markings are a little prominent. I think he has probably some pulmonary fibrosis. The gall bladder series reveals due in the intestinal tract but nonvisualization of the gall bladder. On the basis of that single study, there is apparently a non-functioning gall bladder.

On his GI series, the pars media in the fundus of the stomach appears to be displaced anteriorly. I don't see any evidence of an intrinsic lesion in the stomach, the distribution of his duodenal loop is not disturbed and the mucosal pattern is good. It is not widened any.

I can't outline a soft tissue mass on this film of the abdomen, which is a three hour follow-up film and shows no significant gastric retention. An impression upon this area of the stomach could be caused by a cyst in the tail of the pancreas.

I don't see any evidence of intrinsic disease in the GI tract. He has far advanced old arthritic changes in the spine but I don't see any evidence of metastatic disease, or anything else that is contributory.

Dr. Appel:

One new fact that Dr. Melton did point out was that the heart was enlarged. That was a teleroentgenogram and in the protocol it said a "healthy chest" was seen.

I want to review briefly the clinical liver function tests just to refresh everybody's mind. (See Charts 1 and 2). Hemoglobin is broken down by the reticulo-endothelial cells and then carried to the liver as bilirubin globin.

-		
	Retention (overproduction) (hemolytic)	Regurgitation (obstructive) or (hepatocellular
ALK. Phostase.	←	1
Urobilinogen a. urine b. stool	†	+
Bilirubin a. urine b. stool	†	† +
Van den Bergh	INDIRECT	DIRECT
Skin Color	Orange yellow	Greenish yellow
Proritus	←→	†
Pain	\leftarrow	- †

Chart No. 1

In the liver it is further broken down, at least in the old classical theory, to free bilirubin and globin. By the bile ducts the bilirubin empties into the intestine and is oxidized further into urobilinogen. Some of it is excreted in the stool, some is reabsorbed in the blood stream from where it may be excreted through the kidneys.

In the primary differential diagnosis of jaundice or what we have termed the "major differential" diagnosis (see Chart 1) one must differentiate between so-called retention and regurgitation jaundice. Retention jaundice is uncommon but there are certain obvious characteristics that help exclude it.

Common Test

One of the most common tests we use is alkaline phosphatase which, of course, will not be changed much in retention jaundice, if at all, but it will be definitely increased in the regurgitation form. Urobilinogen in the urine and in the stool is increased greatly in retention jaundice and decreased in pure regurgitation jaundice.

The Van den Bergh test, of course, is indirect in retention and direct in the other jaundice. The skin color is usually orange-yellow in retention and greenish-yellow in regurgitation.

		HEPATO- CELLULAR	Obstructive
E	Alkaline Phosphatase	90% < 10	90% >10
CRETIO	Urobilinogen a. urine b. stool	1	Man +
N	B.S.P. retention	†	←→
METABOL-C	PROTEINS 1. ceph. floc. 2. thymol turb. 3. serum albumin 4 globulin	† † †	↔ ↔
C	Prothrombin time Response to Vit. K	† poor	good
ANGES	Cholesterol 1. total 2. % esters	‡	† ↔†

Chart No. 2

Pruritus is increased in regurgitation and usually not marked in retention and pain, of course, is usually absent in the one form and present in the other. Now Dr. Dow will present the further differential diagnosis of jaundice.

Dr. Antonio Dow:

Further differentiation is necessary primarily because when a surgeon sees the patient he is considering surgery and differentiation then becomes imperative because surgery is beneficial in the obstructive form and certainly may be harmful in the hepato-cellular form.

The hepato-cellular and obstructive forms of jaundice are sub-groups of the regurgitation variety and are further differentiated by means of the following tests (Chart 2).

The alkaline phosphatase (Bodansky units): In the hepato-cellular forms, 90 percent of the cases have less than ten, and in the obstructive form, 90 percent have greater than ten. The urobilinogen in the urine is increased (urobilin) and in the stool is decreased in the hepato-cellular variety and it is very little affected in the urine in the obstructive form.

Urobilinogen Decreased

The urobilinogen in the stool is decreased in the obstructive jaundice. The BSP retention is increased in the hepato-cellular form and not affected ordinarily in the clear-cut cases of the obstructive form.

The fractionation changes in the protein of the blood, cephalin flocculation, and thymol turbidity are increased in the hepato-cellular form and ordinarily not affected in the obstructive type.

The serum albumin is decreased and the globulin is increased in the hepato-cellular and ordinarily not affected in the obstructive. The prothrombin time is increased in both instances but the response to Vitamin K administration is poor in the hepato-cellular form and very good, almost complete, usually, in the obstructive form.

Cholesterol Down

Cholesterol total and percentage of esters are both decreased in the hepato-cellular form. The total cholesterol is increased in the obstructive jaundice, whereas the percentage of esters may or may not be increased. Now this is the differentiation situation in the uncomplicated cases.

Of course, in the final analysis differentiation between hepato-cellular and obstructive forms is frequently on the basis of history and physical examination. In this particular case you will note from the protocol that most of the laboratory findings support a diagnosis of hepato-cellular disease of the liver. Yet the history would suggest, with a past history of jaundice in 1946 and again one month before admission, gall stones.

Therefore, I think the history and the physical examination in this particular case are the most important factors in the diagnosis.

Before 1946

As we see this case today we see that he started with a stone or stricture sometime before 1946.

He had a mild acute disease at that time, with fever and jaundice and maybe a little bit of cholangitis, but he kept on living so he went gradually into the chronic form of cholangitis.

Eventually a little bit of biliary cirrhosis developed which then confused the picture, so that we can't really tell by the laboratory alone whether we are dealing with hepato-cellular or obstructive disease.

But the history is suggestive. So here we are in this particular case at a point where the surgeon was prepared to operate. The patient died, and I will turn the case back to Dr. Appel so that he can tell us why he died.

Dr. Frederick P. Bornstein:

What is your diagnosis, Dr. Dow?

Dr. Dow:

When he was admitted he had a questionable palpable and tender gall bladder. Because of the fever you must suspect a possible acute empyema of the gall bladder and because of the mass behind the stomach we might also include a complicating pancreatitis. I would expect to find common duct gall stones with a pancreatitis, possibly an empyema of the gall bladder, maybe a carcinoma.

Dr. Appel:

One thing that was missing in the protocol was the electrocardiogram. It was finally located and has been mounted and we will show it to you now. This cardiogram is very interesting. Often enough the EKG's are negative or not typical but this one is very complicated.

In Lead 1 at the top you notice first of all a sinus tachycardia of 110, S-T segment depression following a deep S-wave. Lead 2 shows pointed, relatively high P-waves with sagging of the PTa, that is the atrial T-wave, indicating usually atrial dilatation. Also notice the S-T segment in Lead 2 is depressed and the T-wave is diphasic.

Broad Q-Wave

In Lead 3 you will see a deep, broad Q-wave with slightly elevated S-T segment. The aVf lead and Lead 3 show the same type of Q-wave, broad and quite deep in comparison to the height of the R-waves. In V-1 there is no R-wave, i.e., a QS-wave with some elevation of the S-T segment, positive T. V-2 has a deep S-wave. V-3 also has a small R, deep S.

V-4 displays a small R and deep S-wave and the transition zone in this case was shifted over to V-5; marked clockwise rotation about the long axis. Notice the S-T segment depression in Leads V-4, V-5 and V-6, with prominent S-waves.

Clinical Picture

Now the clinical picture which this man presented in his last five hours is neither classic or typical or simple. Of course, he died, but the question is what was going on and could it have been treated in any way so that he might have survived and gone on to surgery?

Obviously the differential diagnosis lies between massive pulmonary embolism and coronary occlusion. He was in bed for fourteen days and his feet were edematous on admission. The factors favoring pulmonary embolization are listed in Chart three.

The factors favoring myocardial infarction are the age plus something which we didn't know before — his heart was definitely enlarged on the second day of hospitalization.

Long Duration

Then this deep Q-wave in Lead 3, aVf and then a little one in standard Lead 2, are all of long duration. This is where a previous so-called routine EKG would have been of great value. Certainly in preparing a case for surgery at this age, that of a chronically ill man who could be expected to show electrolyte changes, a routine pre-operative EKG with the patient in relatively good condition is certainly a must.

It is too bad we didn't have one because if he had a previous EKG it would have shown us these Q-waves indicative of an old posterior myocardial infarct which presumably was asymptomatic. I think the other changes we see in the EKG suggest atrial dilatation.

Clockwise Rotation

The clockwise rotation suggesting right ventricular dilatation plus the clinical course terminally, suggest an acute pulmonary embolism. The two things coinciding in a patient of 68 proved to be more than he could tolerate.

It is also interesting that the patient expired just prior to anticipated surgery, and I feel very happy for the surgeon who might have had this accident occur on the table or shortly post-operative.

Then we might have wondered what surgical factors contributed to his demise, when actually he died before the surgeons could operate.

Dr. Jack Postlewaite:

At a meeting on a Saturday, we even had the terminal event when we had the meeting. We were faced with trying to sell a medical case to the surgical group. There was a mass and it was

palpable and it was present to a number of examners, and was unexplained.

Even the x-ray showed some sort of mass, possibly retroperitoneal or at least behind the stomach. We wanted to get a biopsy of it or at least give the surgeons an opportunity to see what was going on. Fourteen days were used to discover what his liver situation was going to be.

Second Point

One doesn't expect a 68-year-old man to live orever with a progressive deepening jaundice. The second point was that the terminal event was apid. One wonders if you have to invoke pulnonary embolism, myocardial infarction, etc., with the presence of a mass and progressive hepatic disease. Hepatic coma is a sudden demise.

Obstructive jaundice with some sort of a phenomenal bleeding situation is another rapid denise. A mass that ruptures, discharging fluids or hemicals such as the pancreatic cyst liberating razymes, is very toxic. Secondly there may be pus and thirdly blood.

Rapid Course

The aorta had atherosclerotic changes, it does upture, and it is a rapid way of finishing the case up. The electrocardiographic changes were on the ast day. Well, the man apparently was vitally illust the time.

I believe that shock can make a number of changes that are compatible with infarction or embolism. Next, the x-ray of the chest was not normal as I recall.

The right diaphragm is elevated and we didn't find out whether the diaphragm moved or not on respiration. There were a lot of question marks. I merely bring this up as differential additional information. I desire to know what the mass was.

Dr. Appel:

I think the mass could easily entirely have been liver, even displacing the stomach forward. As far as the terminal events, Dr. Postlewaite has given us a considerable list of possible ways of dying suddenly.

In this particular case I think the most likely things are the ones we already discussed; and shock per se, whether it be from rupture of an abscess or bleeding, would not produce the changes that we have seen in the EKG. I don't think they are consistent with this case.

Dr. Dow:

To answer some of Dr. Postlewaite's questions—a mass alone is one thing, but a mass with jaundice and fever is another thing, specially when

the mass is located behind the stomach and pushing forward.

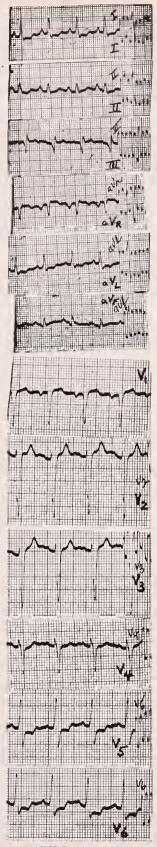
Rather than to look at the mass alone, if instead we look at the mass as one disease form related to the jaundice and the fever, then I think you can see why I concluded that this disease started with stones, some of them possibly impacted at the Ampulla of Vater which gave a secondary pancreatitis and possibly a pancreatic cyst.

I think it is all related originally to the stone, of course, a large liver can certainly give the impression of a mass pushing the stomach forward as Dr. Appel has suggested.

Dr. W. R. Gaddis:

Dr. Appel pointed out that some of the events that happened at the time of surgery. It was my fortune to be scrubbed as an assistant recently on a case of an elderly white female who was undergoing gall bladder surgery and close to the termination of the procedure the anesthetist made note of the fact that the blood pressure had suddenly become almost unobtainable.

There had been very little blood loss to explain this.



EKG taken five hours before death

The patient was hurriedly closed and the procedure was terminated and she was returned to the recovery room where her pressure continued to run at a very low level.

The next day a second EKG was run, (we had the fortune to have one prior to surgery) and a large infarct was noted on the EKG.

The patient subsequently made a satisfactory recovery but suffice it to say, Dr. Appel, that those things do happen under anesthesia sometimes and under those conditions can be very troublesome because no one is quite aware of what has happened to the patient at the time it takes place.

Cause of Death in this Case

1. Pulmonary embolus vs Coronary Occlusion

OR

2. Toth conditions

Factors favoring pulmonary embolism:

1. bed rest 14 days

2. EKG:

a. sinvs tachy cardia (VR=110)

b. P2 high + peaked with

PTa depression lead 2

c. S12 aVL Vs6 all deep

d. QRS prolonged (.11-.12) =

atypical R.B.B.B.

e. Transition yone → Vs

Factors for Inyocardial Infarction:

1. age 68

2. Q3 aVc duration 0.04 + deep

Clinical Diagnosis: Obstructive jaundice; recent coronary occlusion.

Dr. Dow's Diagnosis: Common duct gall stones with pancreatitis; Possible empyema of the gall bladder: Possible carcinoma.

Dr. Appel's Diagnosis: Myocardial infarction; Pulmonary embolism.

Pathological Diagnosis: 1. Carcinoma of the Ampulla of Vater with biliary obstruction and generalized icterus, 2. Ascending cholangitis with abscess formation, 3. Early biliary cirrhosis, 4. Se-

vere coronary sclerosis with recent and old myo cardial infarction.

Pathological Discussion—Dr. Bornstein:

On autopsy we found an elderly man who wa deeply jaundiced. The peritoneal cavity container about 500 cc. of straw colored fluid. The liver wa markedly enlarged, and even more prominent wa the enlargement of the gall bladder, which meas ured 15 cm. in length.

On opening the gall bladder, it contained near ly water-clear bile (so-called hydrops of the galbladder), and no stones. On tracing down th common duct it was seen that the papilla of Vate was edematous and had herniated for one or two cm. into the duodenum.

Papillary Tumor

On opening the papilla a small papillary tumo was found in the wall which obstructed the papilla of Vater. The tumor on microscopic examination proved to be a papillary carcinoma of the biliary type.

It is obvious that such a carcinoma composed of soft and friable tissue could produce a bar valve effect very similar to that of an impacted stone, which is a mechanism completely different from the constricting carcinoma of the head of the pancreas.

This lesion, therefore, correlates well with th clinical findings.

Ascending Cholangitis

In addition, due to the obstruction an ascending cholangitis developed with small abscesses in the liver, which explains those laboratory finding which indicated damage to the hepatic functions.

The final event clinically suggested a cardia or pulmonary lesion. Pulmonary emboli were absent. However, the heart showed the typical changes associated with severe coronary sclerosis. In the apex the wall of the heart was bulging and the myocardium was replaced by fibrous tissue.

Adjacent to it a fresh infarct was found whic was about one to two days old.

Summary

In summary, then, we have a patient suffering with two diseases; a carcinoma of the commo bile duct which produced all the symptoms compatible with long-standing biliary obstruction, and coronary disease which produced the suddedeath of the patient.

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Coming Meetings

University of Colorado Medical Center, Post-graduate Course, Clinical Hematology, Denver, June 16-21, 1958.

University of Colorado School of Medicine, Refresher Course, Dermatology for General Practitioners, Denver, July 10-12, 1958.

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Navajo Lodge, Ruidoso, July 21-24, 1958.

University of Colorado School of Medicine, Postgraduate Course, Ophthalmology, Denver, July 21-24, 1958.

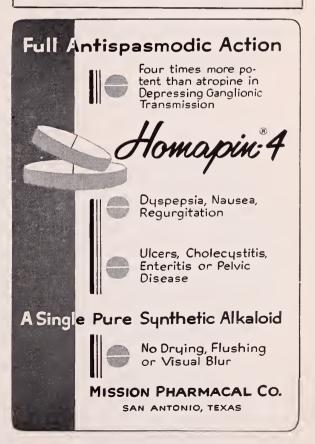
Western Association of Railway Surgeons, annual meeting, Seattle, Aug. 6-8, 1958.

University of Colorado School of Medicine, 7th Annual Western Cardiac Conference, Denver, August 11-16, 1958.

International College of Surgeons, Western Regional meeting, The Riverside Hotel, Reno, Nevada, August 21-23, 1958. For information, write Dr. Leo D. Nannini, 190 Mill St., Reno.

American Fracture Association, annual meeting, Oklahoma City, Oct. 1-3, 1958.

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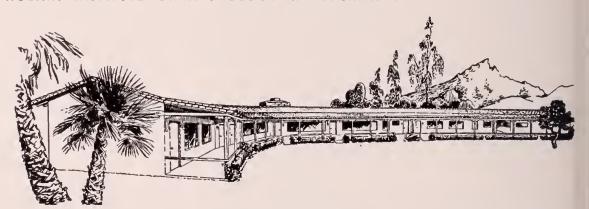
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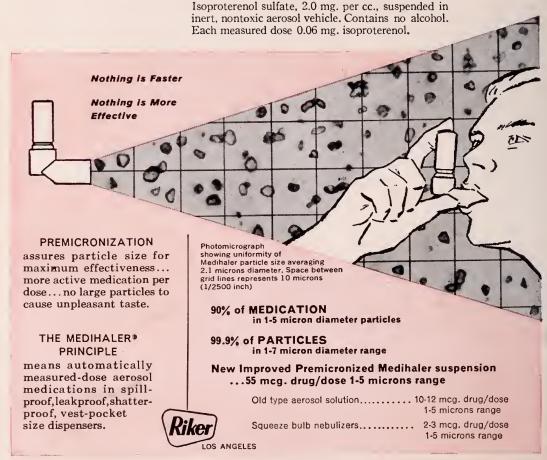
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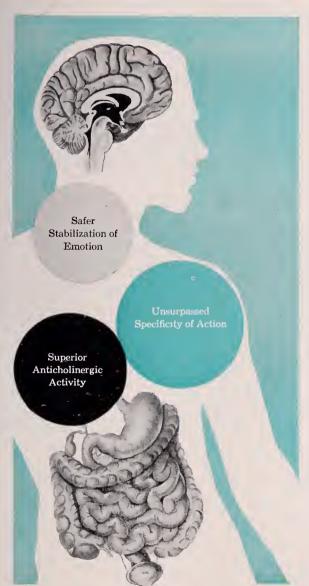
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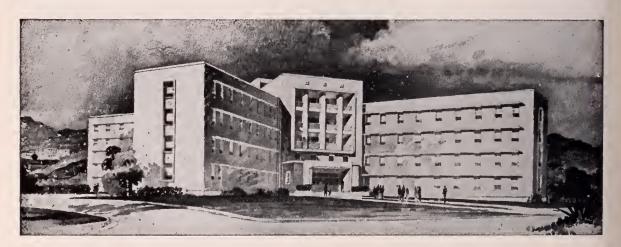
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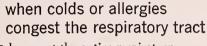
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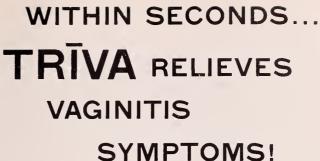
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1. Report of Study by Army, Navy, Air Force Motion Sickness Team: J.A.M.A. 160:755, 1956. 2. Moyer, J. H.: M. Clin. North 1956. 2. Moyer, 3. M. America, March, 1957, p. 405. *Trademark

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Investigator

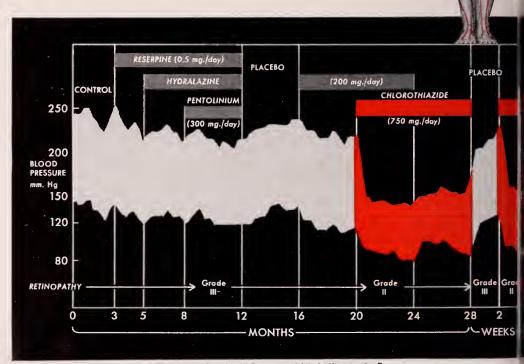
after investigator repo

Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957. "Chlorothiazide added to other antihypertensive drugs reduced the blood pressure in 19 of 23 hypertensive patients." "All of 11 hypertension subjects in whom splanchnicectomy had been performed had a striking blood pressure response to oral administration of chlorothiazide." "... it is

not hypotensive in normotensive patients with congestive heart failure, in whom it is markedly diuretic; it is hypotensive in both compensated and decompensated hypertensive patients (in the former without congestive heart failure, it is not markedly diuretic, whereas in the latter in congestive heart failure, it is markedly diuretic). . . .

Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

"Chlorothiazide (maintenance dose, 0.5 Gm. twice daily) added to the regimen of 73 ambulatory hypertensive patients who were receiving other antihypertensive drugs as well caused an additional reduction [16%] of blood pressure." "The advantages of chlorothiazide were (1) significant antihypertensive effect in a high percentage of patients, particularly when combined with other agents, (2) absence of significant side effects or toxicity in the dosages used, (3) absence of tolerance (at least thus far), and (4) effectiveness with simple 'rule of thumb' oral dosage schedules."



In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension," Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8: 1, Septembe

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FORD, R. V., Rochelle, J.B.III, Handley, C. A., Moyer, J. H. and Spurr, C. L.: J.A.M.A. **166**:129, Jan. 11, 1958.

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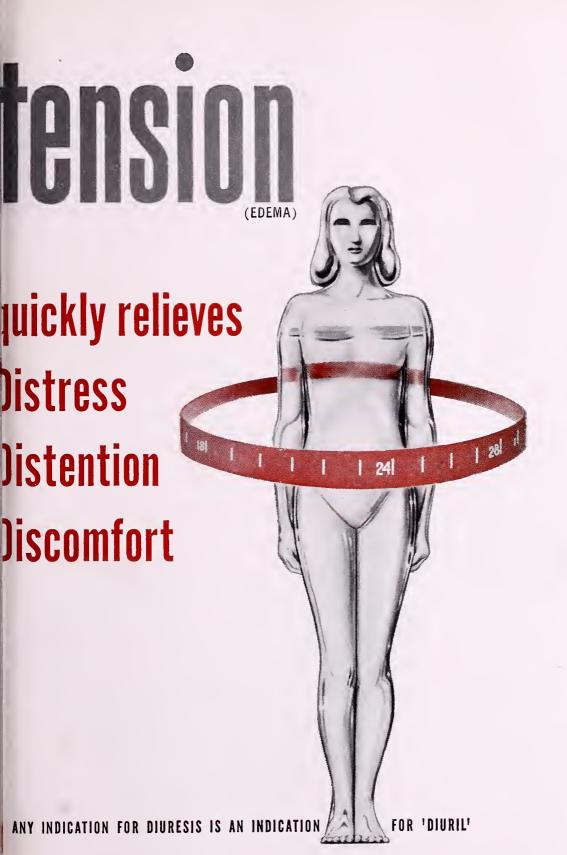
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1. Grossmann, E. E., and Lehman, R. H.: Am. J. Ophth. 42:121, 1956.



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Southwestern MEDICINE

VOL. XXXIX

JULY, 1958

No. 7



CURRENT THERAPY

Acute Coronary Occlusion Emotional Factors—An Atherogenic Factor?

(continued)

By Jack A. Bernard, M. D., F. A. C. P., El Paso

There are numerous articles and statistical reviews on heredity, diabetes, hypertension and their relation to coronary atherosclerosis; and there have been a maze of articles on various diets but *little* is written concerning the emotional factors.

According to the dictionary, angina pectoris is defined as "paroxsymal pain of psychosomatic origin." Another goes so far as to define it as "a paroxsymal neurosis!"

A little thought given to the coronary patients that one has treated will illustrate the great importance of mental stress as compared to physical stress in such patients, outweighing, in all proportion the value of diets, vasodilators, and all the other measures at the physician's command.

Actually after the initial 24-72 hours, the treatment of coronary occlusion resolves itself primarily into the treatment of an emotional problem: the reassurance, guidance, direction and supervision of not only the patient but also his family, in most instances, and particularly, his wife.

Well Recognized

It is difficult to evaluate the value of the various vasodilators and the various antiatherogenic agents in coronary atherosclerosis and much of their value is highly controversial. However, the value of tranquilizers, sedatives, and the avoidance of mental stress and strain is obvious, unquestioned, and well recognized.

Finally, in all the reviews so far in this monthly column, one factor has predominated: the *importance* of the effect of hypertension in the precipation of the symptoms of coronary artery disease and also its effect on the mortality of those patients who go on to develop a coronary occlusion.

In the final analysis, what is thought to be the cause of hypertension? It is felt in many, many instances that hypertension—(for example, "essential hypertension") itself has an emotional or functional basis as its etiology. Thus the importance of the emotional factor in the precipitation of coronary disease is again demonstrated.

Physiological Effects of Emotional Stress

It is well known that emotional stress is accompanied by an increase in the pulse rate, stroke volume, cardiac output, peripheral resistance and arterial blood pressure. Clotting time and blood viscosity are also shortened by emotional stress. Some recent studies showed that serum cholesterol was increased by periods of unusual emotional stress.

Angina pectoris due to emotion is well recognized. The importance of a careful history is emphasized as all findings including electro-cardiogram and exercise test may be negative. But pain on exertion and sudden death in such patients has been seen and described often. The famous phrase of Dr. John Hunter is often quoted: "My life is at the mercy of any Rascal who chooses to tease or annoy me."

Coronary Personality

The question of a coronary personality arises ("like ulcer type," "gall-bladder type") but actually no clear cut type personality has been demonstrated.

It has been said that coronary patients are usually those with compulsive and highly competitive spirit, who work hard with self discipline and who strive hard for success.

Emotional Factors in Congestive Heart Failure

Interestingly, Chambers and Reiser said that emotional factors played a major precipitating role in 76 percent of a group of 25 patients studied, in precipitating congestive heart failure in these patients. This is a high figure but does not seem unreasonable when one stops to consider the effects of emotional stress on the heart in affecting

pulse rate, stroke volume, cardiac output, peripheral resistance and arterial blood pressure.

Studies have been carried out to determine if there has been a gradually mounting tension in producing a coronary occlusion; also studies on other problems such as diminishing sexual potency producing tension. There is some evidence that these are important.

Also a so-called "anniversary reaction" (Weiss) has been described in which the attack of coronary occlusion sometimes seems to occur on the anniversary of a significant event in the life of the patient; for example, the death of some member of the patient's family.

Thus it is seen that emotional factors over a long period of time are extremely important in coronary atherosclerosis. The mechanism of action is not readily apparent. More studies along the lines of the effect on clotting mechanism, cholesterol, and other related studies might be helpful.

It is very difficult—impossible—for one who has not had a coronary occlusion to even begin to realize the patient's reaction to his illness. It might be said "the physician who treats a coronary occlusion but has not had a coronary, has wisdom; whereas the physician who has had a coronary occlusion and treats it has not only wisdom but understanding."

Mental Shock—Fears

First and foremost, it is very difficult to comprehend what a blow it is to the patient: "the profound mental shock," particularly to the young coronary in whom it is *so* unexpected. Much has been written about "fear of death" in such patients.

The appearance of the patient, the frightened appearance, apprehension, actually the "hyperthyroid appearance," "hopped up" appearance, is not necessarily "fear of death."

At times patients are quite violent, very difficult to sedate and control in such states. This is not "fear of death." It is some sort of reaction to the pain or to the shock.

Bravest of Patients

Patients are concerned and fearful because of the pain—first, then—their concern is disability and economic worries. Actually coronary patients are the bravest of all patients! And also coronary patients "silently" resent their physician feeling that he is afraid to die.

He is more concerned about the pain, his family, his financial problems, and his return to a useful existence—how he will make a living, adjust to a less strenuous routine, etc.

He endeavors to keep up a good front before his family, the nurses and his physician. And as he gradually recovers and realizes every little pain may be his last and that he is actually alive, with death constantly at his side, it is *not* "fear of death," but "fear of pain," "fear of disability," "fear of economic problems," "fear of invalidism!"

Physical Rest-Mental Rest

After the initial episode of pain and shock, the coronary patient has before him several weeks of bed rest. As most patients are the type who have never been ill and have always fought and strived, bed rest for this length of time is a complete reversal for such a patient!

Physical rest is possible because such patients are the type who have trained themselves to control themselves but mental rest is *another* problem! To lie in bed for three to six weeks and control one's mind; what a period of adjustment that is!

And, the patient is usually expected to overcome his mental stress and strain by himself! He is told "don't worry about your business," "don't worry about your wife and family," "don't worry," "don't worry!" So easy to advise!

The barbiturates, tranquilizers and other sedatives are often prescribed in such periods and are certainly indicated. However, there is some slight hazard in that the barbiturates make some patients dizzy and may cause others untoward symptoms.

There is more serious hazard from the tranquilizers in that they may make such patients even more depressed than they are, and there is a *real danger* of increasing a self destructive feeling. This is a real and serious hazard! There is many a "big, tough, coronary patient" serene in appearance before his wife, the doctor, the nurses, who later has many a good cry in the lonely silence of his room.

Thus depression is a real problem. Actually what helps a coronary patient more than any other thing is to see some other coronary patient who had his attack some years before and who now is blithely doing a day's work, playing golf, etc.

A coronary patient's chief concern is whether he will be able to return to a productive life and assume his obligations.

Invalidism

Regression with hypochondriasis and invalidism is sometimes a problem but there is a low incidence of this. More likely patients will tend to deny their illness.

This may lead to self-destructive behavior such as a patient's refusal to accept orders or "forgetting" to take medicine. The wise physician handles this very easily by allowing the patient to do what he wants, because this period soon passes.

After a coronary, patients have many pains that may not be typical angina but these pains are related to coronary insufficiency. Pain may be in either side of the chest.

Quite often the jaws, neck, teeth, shoulders, or elbows, will ache. This is described occasionally but quite often is forgotten and the patient is thought to be neurotic.

Gastro-Cardiac Syndrome

Another very common problem is the gastrocardiac syndrome which is not often described in the literature. A little thought about many of your coronary patients will call to mind that for a period of perhaps up to a year, they will have quite a bit of gastric distress.

(Cardiospasm, pylorospasm, aerophagia.) It is very difficult to distinguish this from coronary

insufficiency.

The distress is often in the same location as the distress of coronary insufficiency and may even radiate in the same manner but this gastro-intestinal distress is usually brought on by certain foods such as raw onions, chocolate, jellies, dried beans and other gas-producing foods and it is relieved by soda or antiacids.

It is a *very* bothersome symptom to the patient and requires great forebearance in treatment on the part of his physician.

It may be identical with coronary pain in character, location and radiation, but it is not brought on by exercise though it may be brought on by emotion or anger. Of course, it is relieved by antiacids; whereas, angina is relieved by nitroglycerin.

Philosophy

Philosophy, ideals, religion, quotes can be quite helpful. For example, one patient was helped by being told, "Worry like Hell, you are going to worry anyhow!" rather than "Don't worry," "Don't worry." Or, in trying to explain to one patient "why," "Why did it happen to me:" he was told that "Nature is cruel, but God takes over when Nature gets out of hand." many a patient finds solace in these and other quotes.

Finally, what can be done about all these psychosomatic aspects? Perhaps for the future, we can stimulate more study on this aspect of coronary artery disease—the emotional factors. Perhaps we can direct more money into the proper channels for such study.

What about right now? One point is clear. It has been stated above that "fear of death" is not the important fear in the patient who has an acute coronary occlusion.

If this is true, why belabor the point? The point is this: Such a patient is concerned primarily about economics, particularly support of family, and if and when he gets back to work,

how he can make a living. Let us be practical. The answer is simple: sufficient life insurance and disability insurance.

Everyone should have a good life insurance program, which means sufficient life insurance and disability insurance set up at an early age (say age 30), unless he has some other means of carrying him through such an illness. One should also remember to allow for office or business overhead. This is often forgotten.

Insurance

In passing, there are many angles to the insurance problem, particularly the premium waver clauses. Some companies will allow part time work. Some companies will not return premiums until a person has been disabled six months, etc.

Some companies have policies in which there are clauses which cancel double indemnity when one draws any disability payments; others do not.

All these points are very confusing. One may be paying for protection which he thinks he has but does not have! For example, some companies will waive premiums from the onset of illness.

Also, some companies are more lenient in that they will continue to waive premiums until the patient returns to full time work. These are extremely important points when one plans to carry a large insurance program, and then finds himself disabled, to return to limited work for some time thereafter.

Ask a colleague who has had a coronary his experiences with the various insurance companies and he can tell you those with which he has been best satisfied.

Better yet secure the services of a competent life insurance man and have your entire program carefully reviewed. There are many technical aspects to a life and disability insurance program. Periodic review with this advisor is a must!

Finally, if a physician or patient has sufficient life insurance and sufficient disability insurance he can have a coronary and "not worry." Some patients will show the apprehensive "hyperthyroid appearance" during the initial episode, the mechanism of which is not clear at present. Studies as regards this should be enlightening.

"Coronary Anonymous"

Later, visits by certain patients who have had coronaries in the past and who do not talk about their illness may be most helpful. Once the idea of a group of "Coronary Anonymous" was considered; and, ideally, this would be a wonderful group, but practically speaking, it might get out of hand. Individual visits by the proper coronary visitors is a better approach.

MEETINGS



Dr. James C. Sedgwick

Dr. Sedgwick of Las Cruces, N.M., Elected President of New Mexico Medical Society

Dr. James C. Sedgwick of Las Cruces, New Mexico, was elected President of the New Mexico Medical Society for 1958-59 at the Society's 76th annual meeting in Albuquerque, N.M., May 13-16. The meeting, held in the complete and attractive facilities of Albuquerque's new Civic Auditorium, was the most successful in history, and registration passed the 400-mark for the first time.

Other new officers are Dr. Lewis M. Overton, Albuquerque, President-Elect, and Dr. Allan L. Haynes, Clovis, Vice-President. Dr. Omar Legant of Albuquerque was elected last year for a two-year term as Secretary-Treasurer. New councilors elected are Dr. W. J. Hossley, Deming, and Dr. Guy Rader, Albuquerque, Dr. E. L. Malone, Roswell, was named Delegate to the AMA convention. Dr. Samuel R. Ziegler, Espanola, was the retiring president.

The 1959 convention will be held in Las Cruces, N. M., located 44 miles northeast of El Paso, Texas, on the Rio Grande near the resplendent Organ Mountains. Las Cruces has a considerable population of military and technical personnel

who are employed at nearby rocket and missile installations.

General chairman of the Albuquerque meeting was Dr. Stuart W. Adler, Albuquerque, former President of the Society, who was assisted by Dr. John F. Boyd, also Albuquerque, Vice-Chairman.

The new President, Dr. Sedgwick, was born in Union, West Virginia, in 1910. He received his B.A. from the University of Texas and his M.D. from the University of Texas Medical Branch at Galveston. He took his internship in the John Sealy Hospital at Galveston and began the practice of medicine in 1938 in Las Cruces, where he is now associated in practice with his brother, Dr. William Sedgwick, Dr. G. H. Wright, and Dr. C. W. Carroll. He became a member of the International College of Surgeons in 1957.

Dr. Sedgwick has served as Councilor in the New Mexico Medical Society for nine years, has twice been President of the Dona Ana County Medical Society and is present Chief-of-Staff of the Memorial General Hospital in Las Cruces.

He is a member of the First Presbyterian Continued on page 387



Complete and attractive facilities of the new Civic Auditorium in Albuquerque were headquarters for the largmeeting in history of the New Mexico Medical Society, May 13 through 16.

Special Photo Report of the New Mexico Medical Society Meeting

Left to right are new officers of the New Mexico Medical Society: Dr. W. J. Hossley, Deming, councilor; Dr. an L. Haynes, Clovis, Vice-President; Dr. James C. Sedgwick, Las Cruces, President; Dr. Lewis M. Overton, Duquerque, President-Elect; and Dr. E. L. Malone, Roswell, Delegate to the American Medical Association. Not the photo are Dr. Omar Legant, Albuquerque, elected in 1957 as Secretary-Treasurer for a two-year term, and Guy Rader, Albuquerque, Councilor.





At a meeting of the New Mexico Pediatric Society, left to right around the table, are Dr. Stuart W. Adler, Albuquerque, general chairman of the convention and a past president of the society; Dr. Lucy Gale McMurray, Albuquerque; Dr. Charlotte M. Beeson, Albuquerque; Dr. Karl L. Bergener, Roswell; Dr. Guy E. Rader, Albuquerque; Dr. Oscar Syme, Albuquerque; Dr. David M. Post, Los Alamos; Dr. Eleanor L. Adler, Albuquerque; Dr. Mildrum K. Wylder, Albuquerque; Dr. Albert S. Lathrop, Santa Fe; Dr. Stanley J. Leland, Santa Fe; and Dr. Louis F. Kuehn, Albuquerque.



Dr. and Mrs. C. D. Kaiser of Roswell examine denils of the Fort Stanton Tuberculosis Hospital display.



Bernece Hynes, Albuquerque, President of Bernilillo County Medical Assistants Association, (and Mrs. S. A. Merriam, Albuquerque, a member the MAA as well as the Bernilillo County Auxiliary, before a poster telling about the AAGP meeting in doso, N. M., July 21-24.



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The camera interrupts a luncheon of the New Mexico Society of Pathologists and Radiologists in the Hilto Hotel.



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train a modern physician.

"Johns Hopkins University is one example of a medical school that is projecting a revised training program," he said. "This program will shorten the training course by one or two years, reduce the total cost of medical training, and increase emphasis on creative and independent study. The first four years of this five year course will be based on an academic year increased from the usual 32 weeks to 40 weeks. The fifth year, representing a rotating internship in the Johns Hopkins Hospital, will cover the entire 52-week year.

"However, in place of the current degree requirement for admission, carefully selected students may by admitted to this five-year program after two years of college. This will make it possible for the talented student to complete in seven years instead of the current nine. At the same time, other students will have the opportunity to enter after either three or the usual four years of college."

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The medication contains bismuth subnitrate, specially processed for fine trituration and minute particulation, with a synergistic antacid combination.

In this form the protective bismuth subnitrate adheres closely to the ulcer wall and encourages epithelization and healing. Treatment with Romach (Roter) tablets provided immediate relief of pain in 92 percent of cases and roentgenological healing of the ulcer in 81 percent.

The average weight gain was 7.9 lb. and occult blood disappeared from the stools in all of the six cases in which it was found. The special features of this medication are prolonged relief of pain, suitability for ambulatory patients, correction of gastric hyperacidity, absence of side reactions, and early healing of the ulcer in most cases.



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Western Railway Surgeons to Meet Aug. 7-9 in Seattle

The Western Association of Railway Surgeons will hold their annual meeting Aug. 7-9 in Seattle.

The meeting will open at 9 a.m. Thursday, Aug. 7 with the presidential address by Dr. Bernard E. McConville of Seattle.

Other Railway Surgeons officers are John R. Winston, M.D., Chicago, first vice-president; Joe R. Gandy, M.D., Houston, second vice-president; Harry Hund, M.D., San Rafael, Calif., treasurer; Graham Owens, M.D., secretary; and Glenn F. Cushman, M.D., chairman of the executive committee.

The scientific program will consist of the following papers:

Thursday Morning, August 7

Definitive Surgery in Ano-Rectal Disease, by Dr. William A. McMahon, Consultant in Proctology, Milwaukee Road.

Injuries to Phlebitic Leg, by Dr. Matthew H. Evoy, Clinical Associate in Surgery, University of Washington School of Medicine; Surgical Consultant, Milwaukee Road.

Use of Z-Plasties in Local Flaps in Immediate Repair of Traumatic Wounds, by Dr. Carl E. Chism, Clinical Associate in Surgery, University of Washington School of Medicine; Consultant in Surgery, U.S. Public Health Hospital; Consultant in Surgery, Veterans Administration; Consultant in Plastic Surgery, Milwaukee Road.

The Rehabilitation of the Coronary Patient, by Dr. James D. Layman, Assistant Chief Surgeon, Milwaukee Road and Dr. William J. Kelly, Local Surgeon, Union Pacific.

The Seizure Problem, by Dr. John R. Mullins, Instructor in Neurology, University of Washington School of Medicine; Neurological Consultant to Milwaukee Road, Union Pacific and Great Northern.

Friday Morning, August 8

Cholecystitis, by Dr. Stephen J. Wood, Surgeon. Union Pacific and Dr. D. M. Ulrich, Clinical Associate, Department of Medicine, University of Washington School of Medicine; Consultant in Internal Medicine, U.S. Public Health Hospital.

Operative Cholangiogram and Newer Techniques in Gallbladder Visualization, by Dr. James Nelson, Consultant in Radiology, Milwaukee Road.

Recent Advances in the Surgical Treatment of Deafness, by Dr. William T. Duggan, Assistant

Dr. Crystal

Dr. DePree

Dr. Duggan

Dr. McConville

















Dr. Mullins

Dr. Speir

Dr. Ulrich

Dr. Wood

Clinical Professor, Ear, Nose, and Throat Department, University of California, Chief of ENT Department, Southern Pacific Hospital.

Management of Ureteral Injuries, by Dr. Carl J. Pinard, Jr., Consultant in Urology, Milwaukee Road.

THE ANNUAL DOCTOR WILLIAM T. CUMMINS MEMORIAL LECTURE

The Surgery of Peptic Ulcer, by Edward B. Speir, Consultant in Surgery, University of Washington School of Medicine.

Saturday Morning, August 9

Repair of Acromioclavicular Separation, by Dr. B. E. McConville, Clinical Associate, Department of Orthopedics, University of Washington School of Medicine; Orthopedist, Union Pacific: Consulting Orthopedist, Milwaukee Road.

Tears of Rotator Cuff of Shoulder, by Dr. J. Irving Tuell, Consultant in Orthopedic Surgery, University of Washington School of Medicine: Consultant in Orthopedic Surgery, U.S. Public Health Hospital.

Primary Repair of Vascular Injuries, by Dr. Dean K. Crystal, Medical Instructor in Surgery, University of Washington School of Medicine; Cardiovascular Surgeon, U.S. Public Health Hospital; Consultant in Surgery, Milwaukee Road.

"Genito-Urinary Injuries" will be the subject of a paper delivered by Dr. Roger W. Barnes of Los Angeles. This paper was submitted too late to be included in this program. Following the presentation of the scientific papers, the annual business meeting will take place.

Since the meeting of the Western Association of Railway Surgeons is taking place during the annual Seafair week in Seattle, there is no dearth of entertainment and plans are being made for the following:

Thursday Afternoon, August 7 Longacres horse racing will be a feature.

Thursday Evening, August 7

Arrangements have been made for a block of tickets for the Aqua Follies, a performance which is staged on beautiful Green Lake which is within the city limits of Seattle.

Friday Afternoon, August 8 A scenic cruise through Seattle waterways.

Friday Evening, August 8 Banquet.

Saturday Afternoon and Evening, August 9
This time is left open for the delegates to do as they please.

Sunday, August 10

The nationally famous Gold Cup Hydroplane Races are being held on Lake Washington within the city limits of Seattle, and arrangements have been made for a block of tickets for those who wish to attend this spectacular event.

The committee on arrangements consists of Dr. James E. DePree, chairman; Dr. Stephen J. Wood, Dr. James D. Layman, Dr. J. L. Ash, Dr. John M. Shiach, Dr. William J. Kelly.

APHORISMS and MEMORABILIA

Truths and Concepts Concerning The Gastro-Intestinal Tract

(continued)

- **40.** "It would seem also that the physician should be slow to alarm patients over the fact that they have gastric anacidity. He should remember that this peculiarity can be found in one of four apparently normal persons aged sixty years."—Walter Alvarez, Collected Papers of the Mayo Clinic, W. B. Saunders Co., Phil., 1933, p. 7.
- **41.** "Some day some wag will write a history of diet fads of our generation. I do not know anything in medicine that seems so faddish and foolish as our remarks on diet, the diet in nephritis, the diet of gastric ulcer, the diet of rheumatism, etc. It does not make us proud of our profession."—RICHARD CABOT, Case Records, M. G. H., June 5, 1923.
- **42.** "The occurrence of hiccups postoperatively is always disquieting as suggesting either peritonitis or renal insufficiency."—Hugh Cabot, Case Records, M. G. H., Jan. 2, 1923.
- **43.** "Dullness in the region of the spleen can be produced by so many other things that we no longer pay any attention to it unless we feel the edge of the organ."—RICHARD CABOT, Case Records, M. G. H., Feb. 6, 1923.
- **44.** "Fifty percent of all cancers of the colon are within reach of the index finger and 75 percent within reach of the proctoscope."—FERDINAND JORDAN (p. c.).
- **45.** "Spider-web angiomata are consistent with intra-hepatic disturbance nothing more." J. Talbott, New England J. Med., 220: 925, 1939.
- **46.** "Suspect Meckel's diverticulum in a patient with abdominal pain and deformed umbilicus."—FERDINAND JORDAN (p. c.).

- **47.** "The most common operation for peptic ulcer is appendectomy."—Ferdinand Jordan (p. c.).
- **48.** "All patients with jaundice lose weight and the weight loss may be excessive. It is important to remember that the amount of weight loss is of no significance in differential diagnosis." Ferdinand Jordan (p. c.).
- **49.** "Epigastric pain occurring only at night or on lying down suggests the presence of esophageal hiatus hernia."—FERDINAND JORDAN (p. c.).
- **50.** "I wonder how often a surgically removed gall bladder ought to be spoken of not as 'strawberry' but 'raspberry'." FERDINAND JORDAN (p, c.).
- **51.** "When the left kidney is found displaced by a mass in the left flank or abdomen, the mass will usually prove to be extra-peritoneal. Enlargement of the spleen even when massive almost never disturbs the position of the left kidney."—P. Shambaugh, *Radiology*, Mar. 1936, p. 335.
- **52.** "You find amoebae in scrapings from linings of a liver abscess, not in the thick pus you aspirate."—STUART HARRINGTON, Arch. Surg. 21: 1146, 1930.
- 53. "Primarily, cholecytography is a test of the functional integrity of the gall bladder, of its ability to receive and to concentrate bile—Absence of any shadow of dye indicates rather definitely that the function of the gall bladder to receive and concentrate bile is markedly impaired and empirically warrants the inference that the cause of impairment is disease of the biliary tract, particularly of the gall bladder or its ducts; and that inference will rarely fail to be sustained at operation."—B. R. KIRKLIN, M. Clin. North America, Aug. 1939, p. 913.

THE PRESIDENT'S COLUMN

Xanthomas of the Eyelids

By Louis G. Jekel, M.D., Phoenix

Xanthomas of the eyelids (xanthelasma), the commonest of all xanthomas, are rather frequently encountered lesions. Often the doctor (especially



Dr. Louis G. Jekel x

the dermatologist) is consulted by the patient with the request to "do something" about these unsightly lesions.

Removal of the lesions can be accomplished. The method is not important: it can be surgical excision, or electrosurgical or chemosurgical destruction. Most important is to decide whether or not to attempt removal at all. The reasons for this from the following dis-

attitude can be surmised from the following discussion.

Xanthelasma is one of a group of conditions known as hypercholesteremic xanthomatoses. Other members of this group are xanthoma planum, xanthoma tuberosum, xanthoma tendinosum, familial hypercholesteremia with xanthomas, and the hypercholesteremia with xanthomas secondary to liver disease or to hypothyroidism.

Danger Signals

Xanthomas of this group are danger signals. They are an indication of a disturbance of cholesterol metabolism. These patients are candidates for atherosclerosis, hypertension, angina pectoris, and coronary occlusion with its accompanying myocardial infarction.

So again comes the question of whether or not to remove the lesions. A diet low in fats (15 to 25gms.) will in some cases cause the lesions to regress after a number of months. When a normal diet is resumed the lesions become more pronounced again.

So, too, if the lesions are removed surgically, and a normal diet is followed, the lesions will return. Thus, these people, when they follow an ordinary diet, cannot hope to remain free from xanthomas.

I believe it is not important to remove the lesions, except for special reasons. The important thing is to control the patient's diet and do whatever else can be done to lower the serum cholesterol and thus try to ward off the disaster of a myocardial infarction.

Frequent Diabetes

These people also frequently suffer from diabetes mellitus. The presence or absence of this disease must be determined in each case.

If diabetes is not present suitable hygienic conditions and proper habits of living, especially insofar as diet is concerned, may go a long way toward postponing or preventing the advent of the disease.

So it would seem that these patients present us with an opportunity to practice some preventive medicine. For here is a group of persons susceptible to coronary disease and to diabetes in whom we may be able to do something.

Such an opportunity, which does not present itself frequently, certainly should not be overlooked.

ORTHOPAEDIC SURGERY NOTES

"Immediate Treatment Planning for Definitive Treatment of Severely Injured Individuals With Multiple Fractures"*

By George L. Dixon, M.D., Tucson

It occurred to us approximately a year ago in caring for a victim of a violent accident with multiple injuries that we had been using the same general plan that we had used for well over three decades. The plan at that time consisted of four parts.

- 1. First aid.
- 2. General examination and making a plan for definitive treatment.
- 3. The use of consultants.
- 4. The general management and supervision and the total handling of the case by one man.

It further occurred to us that a plan to have been followed for so many years must have some merit, for judging by the survival rate of such victims and the percentage of those victims restored to full function, the modern medicine of the middle "20's" when compared to our present knowledge, was as immature as the comparison of the medicine of the middle "90's" to the medicine of the middle "20's".

Additional Advantages

The victim of today without present knowledge and organization has the additional advantages of:

- 1. Rapidity of communication.
- 2. Rapid transportation, including roads.
- 3. Organized and well equipped emergency rooms in hospitals with complete equipment.
- 4. Increased medical knowledge, including specialization.
- 5. Modern and present day team work within the medical profession.

Before presenting the plan used as of today, let us visualize the victim of multiple serious injuries in an automobile accident, the commonest accident of violence in this era.

*Presented at the American Fracture Association Meeting, October 2, 1957, in El Paso.

The peace officer arrives shortly after the accident and directs first aid along with the other duties, using his short wave to call an ambulance and on its arrival, can figuratively heave a sigh of relief and turn the victim over to the care of the attendants for possible additional first aid treatment. The purpose of this is to "prevent further injury."

To Emergency Room

The victim is transported rapidly to the emergency room of the nearest hospital where first a glorified type of first aid can be practiced because of the organization and equipment.

As soon as possible by the ambulance attendants and emergency room personnel, the victim is moved to a wheeled cart which has the advantage of being in a good position to work for the attendants and on which the victim can be treated for many hours or transported to other parts of the hospital without gross handling.

General Examination

At this time a complete, rapid, general examination of the patient for total evaluation and working diagnoses can be adequately accomplished and additional special services available in the hospital can be called upon.

In making this evaluation for the working diagnoses, we have found it useful to use the gross system method. These systems consist of the nervous system, the cardio-vascular, the upper respiratory, musculo-skeletal, genito-urinary, as to which system has been subject to the greatest trauma and the effect on the other systems.

The plan used as of today has the same principal parts as it did originally.

I. First Aid

Under the auspices of the County Medical Society, the parent organization of all medicine in the community, with the aid of the Red Cross, preferably by a doctor.

- 1. First aid instruction is given to all peace officers.
- 2. First aid instructions to owners, operators and attendants of ambulances.

These latter, by virtue of their occupation, care for many more victims than does the single peace officer.

II. Emergency Room

Again, under the auspices of the County Medical Society, the parent organization, the staffs at the various hospitals are made responsible for the organization and equipment of their emergency rooms and hospitals.

- 1. Glorified first aid.
- 2. General examination and evaluation making a plan for definitive treatment of the victim.

Here it should again be pointed out that with the victim on a wheeled cart, not only the examination but many forms of treatment can be accomplished. Further, when the patient is to be moved to another part of the hospital, he will not require further gross handling, and if he is to go to his room, arrangements can be made for certain equipment to be placed and present on his arrival.

Or, if to an operating room, personnel and equipment can be gotten ready, converting the procedure from an emergency operating room procedure to a planned one.

III. Use of Consultants

The use of consultants in medicine of today does not require explanation which leads us to a discussion of the abuse of consultants by the physician or surgeon in charge and the possible abuse by consultants of the victim. In most instances, having decided as the physician or surgeon in charge, on a consultant, you must then decide on how soon he should see the patient.

Ordinarily your general knowledge can take care of preventative and early treatment, but in many instances, it is best to contact the consultant by telephone, giving him a general picture of the case and asking him for suggestions for immediate treatment and making arrangements for him to see the patient.

The abuse by consultants of the patient can follow at any time, as there is nothing that confuses an emergency room crew to the detriment of the victim's welfare as having examinations and orders from one or more consultants at the same time. Further, after care during the critical period and even later, with a multiplicity of orders rather than one individual being in general charge, also is to the detriment of the patient.

IV. General Management and Supervision by one Physician or Surgeon

At this point we have admitted the very definite use of consultants as well as the advisability, but because all of us who limit our practice to one field of medicine are apt to have the common failing of "tubal-vision" and because of that fact easily forget momentarily the patient as a whole, one medico should supervise the orders so that they can be timed properly and allow the victim the physiological rest necessary for his recovery, without neglecting any particular injury.

This is more easily arranged if the same team always works together but can just as easily be done with any team by the use of the telephone and the requested consideration of the several consultants.

This ends the general discussion and the preparation of the same general plan applied and used as of today. We will bring out certain points in the management of cases by presenting briefly six such victim's histories.

Case Presentation:

3. ZG:

Age 61. Automobile accident. Driver. Had to be removed from his Thunderbird by blow torches and hack saw. At the time of his removal, the right knee was resting on the os pubes:

Diagnoses:

- 1. Comminuted fracture of the right femur.
- 2. Compound fracture of the left elbow.
- 3. Compound fracture of the right os calcis.
- 4. Complete dislocation of the knee with fracture of the base of both tibial spines, which were displaced, associated with a non-displaced fracture of the left medial condyle.
- 5. Non-displaced multiple fractures of the left metatarsals.
- 6. Multiple rib fractures, right.

Past Medical History:

General condition prior to the accident:

- 1. Asthmatic.
- 2. Bronchiactactic.
- 3. Arteriosclerotic.
- 4. Deforming fracture of the left wrist with limitation of motion and synostosis distally.
- Minor flexion contractures of both knees, 15 degrees.
- Extension contractures of all toes of both feet.

Consultants

1. Internist.

Initial first aid in a hospital 60 miles away where he was splinted and cast. He had no head injury and actually directed his removal from the automobile. Had had opiates and 1,000,000 units of Penicillin. Taken to operating room. Under spinal anesthesia and some slight Pentothol, debridement was done of the right os calcis and reduction and cast applied. 2. Reduction of the left knee, cast. Massive bandages applied to the left foot. 3. Debridement and original splints on the left elbow. 4. Open reduction and internal fixation of the femur. Neufeld nail and multiple plates and screws. Returned to his bed in floating Thomas splint with Pearson attachment. This

case is shown:

- 1. Early treatment of femur not advisable so soon but because of general condition of patient for nursing care and handling.
- 2. Right femur, multiple plates, etc.

COMMENTS BY DR. BASOM, ORTHOPAEDIC EDITOR

Dr. Dixon presented roentgenograms of these cases and simultaneously he presented on a second screen a delineoscope projection of the case summary. His paper was therefore beautifully and extensively illustrated.

It revealed conscientious and intensive study and thoughtful treatment of each of these multiple injury cases. Also, his roentgenograms revealed the work of a master surgeon. The reductions were beautifully done. The fixation material was applied precisely. The results were excellent.

Space Limitations

Because of space, only one of the six excellently reported cases could be included here.

In summary one would conclude that victims of accidents, severely injured individuals with multiple fractures, should have carefully applied first aid. Emergency room work should be carried out carefully. One physician should be in charge and all the necessary consultants should be utilized on each case. Definitive treatment should be carried out at the proper time.

American Heart Association Co-Sponsors "Heart Bulletin"

The 'Heart Bulletin," a bi-monthly professional journal on heart disease directed primarily to family physicians, is now sponsored by the American Heart Association in cooperation with the National Heart Institute of the U. S. Public Health Service and the American Academy of General Practice. The announcement, made by Dr. Robert W. Wilkins, President of the Heart Association, said the joint sponsorship took effect with the May-June issue.

The Heart Bulletin has been issued as a public service since March, 1952 by the Medical Arts Publishing Foundation, Houston, a non-profit service organization affiliated with the University of Texas. The Foundation will continue to publish and distribute the journal. The Heart Bulletin is made available to many physicians on a state-wide basis through subscriptions purchased by affiliated Heart Associations, state medical societies and state health departments.

Continued Service

Dr. Wilkins said that the publication "will con-

tinue its service to the practitioner by keeping him abreast of the latest knowledge in the rapidly expanding field of diseases of the heart and blood vesssels."

Under the new sponsorship, Dr. Russell W. Cumley, Executive Editor of the Heart Bulletin, will be assisted by seven Associate Medical Editors appointed by the Heart Association who will solicit articles from authoritative sources in their respective fields of cardiovascular disease.

Named by the Heart Association to serve as Associate Medical Editors of the publication in their fields of specialization are: Dr. Sidney Blumenthal, New York City, Pediatrics; Dr. Harriet Dustan, Cleveland, Research; Dr. Edward D. Freis, Washington, D. C., Hypertension; Dr. John W. Kirklin, Rochester, Minn., Cardiovascular Surgery; Dr. Arthur J. Merrill, Atlanta, Peripheral Circulation; Dr. Gerald H. Whipple, Boston, Electrocardiography; and Dr. James V. Warren, Durham, N. C., Clinical Cardiology.

MONTHLY CLINICAL PATHOLOGICAL CONFERENCE PASO GENERAL HOSPITAL

May 15, 1958

F. P. Bornstein, M.D., Editor — Case No. 794

Presentation of Case by Ben Taber, M.D.

History - Dr. Nathan Kleban

Present Illness: Abdominal distress brought a 70-year-old Latin-American widow to the hospital on December 18, 1956.

Four weeks before admission the patient lost her appetite. This was followed by distention of her abdomen. Her dresses no longer seemed large enough. Stools became liquid. Loss of strength became so profound that she was no longer able to walk when she was brought to the hospital.

Past History: Passage of only small amounts of urine had occurred for a long but indefinite period of time. The patient had menstruated from age 11 to 50. She had never been pregnant. Childhood diseases, other illnesses, surgery and trauma were all denied.

System review yielded no additional informa-

Family History: Mother, father, one brother and three sisters were all dead of causes unknown to the patient.

Physical Examination

Vital signs on admission were: Temperature 100, pulse 100, respirations 16, blood pressure 170/60. Her general state of nutrition was described as "bad." Oral hygiene was poor. Mucous membranes were dry. A submandibular lymph node on the right was enlarged and tender.

Pitting edema was detected in the chest and abdominal walls. Over the latter area, which was distended, prominent veins were observed. Percussion note was dull in the flanks and hypogastrium. The liver was thought not to be enlarged.

A Bartholin cyst was found on the left. Vaginal mucosa was atrophic and bled when the speculum was inserted. The walls seemed to be slightly indurated. The uterus was not definitely outlined.

Appearance of the cervix and condition of the adnexas and cul-de-sac were not described. Slides of cervical scraping for Papanicolaou stain were made. One+ edema of the legs was reported.

Hospital Course

Fever up to 100 or 101 was present on 11 of 39 hospital days. On the ninth day the patient was seen by a medical and on the tenth day by a gynecological consultant. The only record on the chart states that the latter "examined her without gross findings."

Vomiting of dark green liquid, passage of liquid stools, and abdominal pain were intermittent. Anorexia and nausea persisted. At times stools were yellow and soft or brown and formed.

Penicillin-streptomycin were given in combination once daily for seven days. Digitalis was prescribed for congestive heart failure on the ninth day. Symptoms and signs to substantiate this diagnosis were recorded neither on the physician's progress notes nor on the nurse's record sheet. A parenteral mercurial diuretic was begun and continued twice a week until day of death.

A retention catheter was inserted into the urinary bladder on the day of admission and one remained in place throughout most of her hospital stay.

Tube feeding was attempted but distention increased and vomiting was provoked. Involuntary bowel movements began on the 29th day and stopped on the 37th. Decubitus ulcers developed.

Tube feeding was resumed. Oxygen was administered by nasal catheter and pharyngeal suctioning was required beginning on the 34th day. Breathing became sterterous. On the 39th day the patient's request that fluid not be put into her nasal gastric tube because it was so painful for her was granted. Several hours later she died.

Laboratory Findings

X-Rays: 12-18-56 — Abdomen — "Survey film of the abdomen reveals a moderate amount of gas in both the stomach and colon. There is no evidence of mechanical obstruction. No opaque calculi can be identified. The right costal phrenic sulcus is obscured secondary to thickened pleura.

There are moderate degenerative changes in the lumbar spine. An oval opacity in the pelvis probably represents a phlebolith. Conclusions: Abdomen negative for evidence of mechanical obstruction."

12-20-56 — IV pyelogram — "Survey film of the abdomen reveals several dilated loops of small bowel as well as gas in the large bowel. There is a generalized haze in the abdomen most probably due to the habitus of the patient. Some ascites can not be entirely excluded. Following the intravenous administration of hypaque there is prompt bilateral excretion in good concentration.

No significant addition or subtraction defects can be identified. The bladder contour is somewhat irregular and descends well below the pubic symphasis secondary to an accompanying cystocele. Conclusions: Normally concentrating and draining kidneys; findings consistent with cystocele."

12-24-56 — Barium enema and chest—"Barium was instilled into the rectum and flowed readily throughout the colon to the cecum. There was no evidence of herniation. There were no addition or subtraction defects observed. Evaluation film revealed fair motor function. Chest: Sagittal view of the chest revealed a pleural effusion on the right.

The pulmonary markings are intensified consistent with an accompanying failure. There is left ventricular prominence. These findings are consistent with hypertensive and arteriosclerotic cardiovascular disease. Conclusions: Colon negative for evidence of neoplasm or colitis: Chest, findings consistent with hypertensive and arteriosclerotic cardiovascular disease with accompanying failure."

12-26-56 — Upper GI — The esophagus was patulous to barium liquid. There was no evidence of hiatal hernia. The stomach was high in position. Peristalsis was vigorous and effective. There were no significant gastric addition or subtraction defects.

The pyloric canal was centrally located. The duodenal bulb filled and emptied regularly. There was no widening of the duodenal loop. Conclusions: Upper GI negative for evidence of ulcer or neoplasm."

1-14-57 — "Survey films of the abdomen reveal the kidneys to be normal in size, shape and position. The psoas shadows and properitoneal fat lines are visualized bilaterally. There is an accumulation of small intestinal gas in the mid-abdomen suggestive of possible internal hernia.

Opaque media is present in the colon, the residual of previously ingested barium. The lumbar spine and pelvis appear natural. Conclusions: Findings consistent with adynamic ileus; findings suggestive of internal hernia."

1-15-57 — Abdomen — "Re-examination of the abdomen and comparison with previous study reveals no significant change except for the presence of a tube in the stomach. The previously observed collection of small bowel gas in the left flank remains not significantly changed. Conclusions: Findings suggestive of internal hernia."

12-27-56 — Papanicolaou smears from cervical os discharge negative for tumor cells.

Blood counts: 12-19-56 — Hb. 12.4 gms., Ht. 38%, WBC 10,550, Stabs. 2, Segs. 69, Lymphs.

27, Monos. 2. 1-8-57 — Hb. 13.0 gms., Ht. 41%, WBC 12,400, Segs. 80, Lymph. 19. 1-16-57 — Hb. 12.0 gms., Ht. 40%, WBC 20,200, Stabs. 3, Segs. 91, Lymphs. 5, Monos. 1. 1-22-57 — Hb. 9.3 gms., Ht. 34%, WBC 26,900, Stabs. 14, Segs. 79, Lymphs. 6, Eosins. 1.

Urinalyses: 12-19-58 — S.G. 1.014, Albumin trace, Sugar neg., rare WBC, reaction acid, sq. epith. cells. 1-8-57 — S.G. QNS, reaction acid, albumin 1+, sugar neg., many WBC with clumps, 2+ bacteria. 1-16-57 — S.G. 1.010, albumin neg., sugar neg., reaction basic, 10-12 WBC/hpf. 1-23-57 — S.G. QNS, reaction acid, albumin neg., sugar neg., 20-25 WBC.

Blood Chemistry: 12-19-56 — Non-Protein Nitrogen — 39 mg. %. Urea Nitrogen — 10.7 mg. %. 12-20-56 — Urea Nitrogen — 11.2 mg. %. 12-24-56 — Chlorides — 567 mg. %. Total protein — 8.8 gm. %. Albumin — 3.3. Globulin — 5.5. A/G — .7/1. Van den Bergh Direct — .25 mg. %. Indirect — 1.25. Potassium — 4.6 mEq/1. Sodium — 142 mEq/1. 12-27-56 — Alkaline phosphatase — .75 B. U.

Miscellaneous — 12-20-56 — Serology negative. 12-21-56 — Thymol flocculation—12.7 units. Prothrombin time — 62% activity time. 12-28-56 — Cephalin flocculation — 24 hours — 3+. 48 hours — 4+. Prothrombin time — 80% activity time.

Electrocardiogram — 12-26-56 (before digitalis) — "T-waves are inverted in 1, 2, 3, aVf, V-1 through V-6, compatible with diffuse myocardial damage, predominantly artero-inferior."

X-Ray Discussion: Dr. Charles McVaugh

At the original examination on December 20, 1956, this patient exhibits a small bowel pattern pretty characteristic of bowel obstruction. At the same time there is also an over-all density of the abdomen which is consistent with an ascites. This looks like a small bowel obstruction pattern (mechanical obstruction).

The function of the kidneys is within normal limits as far as the pyelogram is concerned. No gross abnormalities are observed, although the pyelogram is not entirely satisfactory.

Chest X-Ray

The next examination is the chest X-ray on the 24th of December. The chest X-ray at this time shows a right pleural effusion. There is a slight left ventricular hypertrophy.

I don't believe this right pleural effusion is due to congestive failure. Because of the appearance of the left lung field, I would be more inclined to believe that this may be secondary to an atelectasis or possibly sub-diaphragmatic pathology.

Edema of Soft Tissues

There is an edema of the soft tissues which makes you think more of a renal disease. A

barium enema done on the same day is negative.

I didn't put the films up here but the barium enema is negative, and the terminal ileum fills for a distance of approximately 20 to 30 cm. I see no point of obstruction in spite of the fact that for me this small bowel pattern at the original examination is consistent with a small bowel obstruction.

Dr. Nathan Kleban

Did you see anything compatible with hypertensive heart disease?

Dr. McVaugh

As I said, there appeared to be some left ventricular hypertrophy. There is definite calcification of the aorta but as the patient is 70 years old, it is consistent with the age of the patient, nothing remarkable.

Dr. Kleban

Did you not see any calcium in the heart valves or in the coronary arteries?

Dr. McVaugh

No, I see nothing remarkable in the mediastinum. The only findings I see radiographically are in the right chest.

On January 14, 1957, we see residual barium remaining in the colon from the previous upper GI. There was an upper GI done before which showed no small bowel obstruction.

As I say, to me this is a small bowel obstruction pattern; yet the small bowel obstruction pattern seen on the 26th of December is gone.

There is less evidence of ascites and except for this one loop here which is very suspicious of an incarcerated loop of small bowel, the pattern is normal.

The evidence of ascites is gone but there is edema of the soft tissue in the flanks which you commonly see with a generalized anasarca most commonly seen, I guess, with renal disease.

Last Examination

The last examination shows nothing significant in the plain film of the abdomen. I believe this patient had primary abdominal disease with impaired kidney function, generalized edema.

I believe this patient had a temporary small bowel obstruction. I further believe the changes in the chest are probably due to abdominal pathology and not primarily pulmonary pathology, such as you see in gall bladder or hepatic abscesses.

The last examination we have reveals nothing specific, a little small bowel distention here and no evidence of ascites, no evidence of bowel obstruction, and that is all I can contribute.

Clinical Discussion — Dr. Ben Taber:

As I read through this case I obtained the impression of an old woman lying in bed with a huge distended abdomen and I could easily see

why there were so few physical findings according to the chart. The history that she gives is not too significant except that it shows that it is not an acute disease.

There was a chronicity to the affair. For four weeks she had been losing her appetite and her abdomen had been getting larger and she had noticed that her dresses weren't fitting. The main picture seems to be that of abdominal distention.

I think that most of her complaints are due to abdominal distention and we can rule out a fetus because of her age. We can rule out feces on the basis of all the enemas they gave her. We also can rule out a fibroid because of her age.

I think there are two major causes to think of: Either flatus — she apparently had a great deal of air in the small bowel — or fluid. The hospital course, with the subsequent GI series and barium enema, seems to exclude any complete intestinal obstruction. At the worst it was probably just a partial obstruction, more likely due to a reflex ileus than due to mechanical obstruction.

I don't believe that she would have had this course with an actual mechanical obstruction. She put out small stools and she had intermittent periods in which she was doing fairly well. So we have here a patient with fluid in the abdomen. The thought comes to mind whether the fluid is actually free in the adbomen or encysted.

The physical examination is not too helpful because it does not discuss whether there is any evidence of shifting dullness or whether there was any evidence of encysted fluid formation.

Free Fluid

I would assume the fluid was most likely free in the abdomen and if there were any cysts present they were obscured by this free fluid. Often it is very difficult to be sure whether you have ascites or whether you have a cyst.

With much distention the patient is so uncomfortable and so difficult to examine that it can be sometimes almost impossible to be sure of one or the other. With free fluid in the abdomen and in the chest — she apparently had a right hydrothorax — and with pitting edema, we have to think of all the things that could cause chest fluid and abdominal fluid.

The diseases of the heart, liver, and kidneys, of course all could produce a picture like this; radiological evidence seems to be against heart disease. There doesn't seem to be enough peripheral edema for congestive failure. There also were none of the other associated signs of congestive failure.

Although the IV pyelograms were not completely normal, the NPN, BUN and other kidney

function tests were within normal limits and again the picture doesn't seem to be that of kidney disease.

The liver is another possibility with cirrhosis, either primary liver disease or secondary liver disease. However, I think if she had had cirrhosis with this amount of edema she probably would have had esophageal varices and some amount of jaundice, so that I rule out liver disease on that basis.

Also another possibility is cysts or traumatic lesions of the pancreas.

Carcinoma of Pancreas

Carcinoma of the pancreas could probably produce a syndrome like this, but I think there too you would probably have more jaundice and I think there would probably be more intestinal involvement than is apparent here.

This brings us down to the female genital tract, and I know that this is a lesion of the female genital tract because Dr. Bornstein asked me to discuss it.

A lesion of the ovary can produce a picture exactly as we have here. The two most important things to consider that would produce this very picture are either a carcinoma of the ovary or a benign fibroma of the ovary. The latter is known as Meigs' syndrome which is characterized by fibroma or fibrous-like solid tumor of the ovaries associated with intra-abdominal fluid and intrapleural fluid.

A removal of the solid tumor eliminates fluid in the peritoneal and pleural cavities. Meigs' has reported cases of the syndrome in all age groups where patients have come in who had had a diagnosis of carcinoma of the ovary. Some of them expired and on pathological examination they showed no evidence of malignancy, merely a benign tumor of the ovary.

Apparently one of the more important factors is the extreme inanition you see in these patients and the loss of serum albumin and the loss of serous fluid into the serous cavities, so that the abdominal distention interferes with respiration and adequate nutrition.

These women, especially in older age groups, are unable to tolerate this much insult to their general condition.

Now it would be helpful here if we had had examined the ascitic fluid. The usual fluid that you get in a Meigs' syndrome would be a clear yellow type of fluid, whereas in a carcinoma of the ovary you would probably get bloody fluid.

However, you could have bloody fluid or serous fluid in either and it wouldn't be diagnostic.

Cell block studies would be very helpful if you had had fluid aspirated from the chest or abdominal cavity to determine whether there was any evidence of malignant cells.

Now, with carcinoma of the ovary you could have this type of picture and with the history and physical findings and laboratory findings so far presented it is almost impossible to rule in or rule out either one. It would have been important if the patient could have tolerated exploratory procedure to have opened the abdomen and obtained fluid.

The only evidence that was presented here that caused me a great deal of confusion was the high globulin that she presented. She had an albumir in the low portion of normal and a globulin that was extremely high.

I thing that this extremely high globulin caused the positive cephalin flocculation and the positive thymol turbidity.

The question arises whether this is due to metastatic disease in the liver or whether it is just due to chronic disease producing a low albumin and a high globulin. That I don't know

Help Called For

Dr. Bornstein will have to help us with that. It But I think that with the amount of metastasis is necessary to produce severe liver damage she adwould also probably show some jaundice. Her billirubin was within normal limits.

We will assume that the high globulin and the low albumin are more on the basis of poor nutritional condition, than due to the loss of albumin into the cavities.

I think that I will stick with the diagnosis of:

(1) benign fibroma of the ovary with hydrothorax and hydroperitoneum; (2) possible carcinoma of the ovary as an outside chance. Also, in I think I neglected to mention this, probably expelitis of the kidney or ascending infection.

She showed some white cells in the urine and she showed a rising white count and also ran a low grade temperature during most of her hospital stay,

I think that probably the elevated temperature is due to malnutrition and I think the white count and the cells in the urine are added factors due to poor condition and secondary to pyelitis in the kidney.

Dr. F. P. Bornstein

Dr. McVaugh, did you say that part of the X-ray findings indicated a mechanical obstruction?

Dr. McVaugh

The X-ray findings indicated mechanical obstruction.

Dr. Bornstein

If you have a Meigs' syndrome, is it ever accompanied by actual mechanical obstruction? I wanted to raise that point because Dr. McVaugh said partial mechanical obstruction.

Dr. Taber

I don't think so.

Dr. Celso C. Stapp

I want to compliment Dr. Taber's patience in giving a very good discussion with very few physical findings and very little of the history. There is one problem in this type of patient, particularly here at El Paso General: The state of extreme malnutrition will add, aggravate and subtract from your typical picture of any syndrome that we may have, such as the difficulty with the high globulin.

I don't think that picture has anything to do with the possibility of a Meigs' syndrome. I believe that it is more of a poor nutritional status and got us good and garbled up.

Dr. Kleban

The most likely possibility is laboratory error.

Dr. Stapp

Well, that is possible but it is on the record and we are discussing it on the assumption that what is there is done properly. It is rather odd, too, that we find a patient in this age group developing a Meigs' syndrome. Dr. Taber made the statement that she probably did not have a fibroid of the uterus of this size.

I am sure, if she had, it would have been discovered before now. But a patient can have a fibroma of the ovary which could produce a Meigs' syndrome at any age level. I don't think there is any restriction as far as the upper end of age; however, you don't see it too often in the very young.

Dr. Francisco E. Baca

When I was called to see this patient her abdomen was distended and I said, "Why do you want a gynecological consultant? She is ready to die." The gynecological examination was very difficult due to the distention of the abdomen but I didn't feel anything important.

The cervix and all her genital organs were atrophic. The uterus was very small. In the adnexa I can't remember feeling any masses. As to my diagnosis now, I will go with the three things that Dr. Taber mentioned.

Her liver function tests are somewhat abnormal and we all know that cirrhosis of the liver may give us a very marked degree of abnormality on the function tests. Carcinoma of the ovary usually is bilateral.

Usually the cul-de-sac shows some brownish discoloration. Had this been carcinoma of the ovary, I would think we would have felt something in the pelvis.

Now in some cases of cancer of the Fallopian tube you may find a very small lesion causing metastases, abdominal metastases, because of the spilling from the fimbriated end into the abdominal cavity.

White Count

The white count was 10,000 and rose in three weeks to 26,000, with a drop in the hemoglobin from 13 grams to nine grams. This looks more like a ruptured intestine or any abdominal viscus.

Carcinoma of the sigmoid would be a possibility, although in the X-ray we found that the barium enema was normal.

In another case where the patient was very cachectic with distension of the abdomen, there was tuberculosis but it was secondary to a pulmonary lesion. Here apparently the lungs did not have any signs of that disease.

Dr. Antonio Dow

I have only one comment: Why so many tests and hundreds of dollars worth of X-rays when the simplest thing that could have been done here was an abdominal tap to obtain some of that fluid for a pathological examination.

Dr. Kleban

She was on the surgical service to start with.

Dr. Dow

Well, I don't care whose service she was on. It should have been done promptly. I think we would have saved a lot of time and money. We would have made a diagnosis more promptly. I think any guess is as good as any other and I think I would tend to tuberculosis.

I was hoping the gynecologist would say there was some discharge from the cervix. I would favor tuberculosis in this case because of the transient obstructions that she had and the peculiar X-ray picture of the intestines.

Dr. Pablo Ayub

The gynecologist has mentioned that he doesn't think the liver is involved. He doesn't think much of the liver as being a primary diagnosis because of the absence of jaundice.

In metastatic carcinoma of the liver the metastases have to involve the lymph nodes in order to bring on discernible jaundice. There can be a lot of metastases to the liver without there being any jaundice present.

In commenting on the white count and the abdominal pain, I don't know where it arose.

This should have been in the record to give us some idea about the location of the pain and the pathological process,

There can be a lot of inflammatory lesions that give you a picture such as this. The associated involvement of veins may affect the liver with ascites from that source.

I don't know whether there was anything in the pelvis or not but I would say that the increase in the white count represents abscess.

Dr. Jack Postlewaite

The question of differential diagnosis is perhaps more difficult than I would anticipate. There were no localized symptoms and then she apparently died of heart failure.

I think we got a clue when the surgical consultant was worried enough about the disease to have a gynecologist check the pelvis. He came to the conclusion that there was a chronic peritonitis, probably tuberculous in origin.

Because of the ascites I also think she had inflammatory liver disease. I don't think we have an error in our cephalin flocculation or in our proteins.

There was apparently some inflammatory disease of the liver which was not the cause of death. Now it must be diffuse liver disease to be of this nature and superimposed on a chronic problem because the proteins don't reverse that fast.

One gets the impression of something inflammatory in the peritoneal cavity that was injuring the liver progressively.

However, it may have been the liver that caused the symptoms and the abdominal findings were secondary to the liver.

So a pylephlebitis from some ruptered inflammatory organ of the bowel or regional ileitis must be considered.

Dr. W. R. Gaddis

The patient's problem of edema was quite outstanding. I was struck on reading the protocol by the fact that there was distention of the veins over the lower part of the abdominal wall towards the chest, which presupposes that there is some block to the return of the inferior venacava system.

The patient had liver disease — I don't think I am in a position to say whether it is primary or secondary — but I think we may have overlooked the obvious.

Clinical Diagnosis: Atrophic cirrhosis of the liver.

Dr. Taber's Diagnosis: Meigs' syndrome.

Pathological Diagnosis: 1. Tuberculous salpingitis. 2. Tuberculous peritonitis. 3. Chronic hepatitis with early cirrhosis of the liver.

Pathological Discussion — Dr. Bornstein:

On autopsy we found the body of a fairly well nourished woman. The pleural cavities at time of death were free of fluid and adhesions. Ascites had nearly disappeared, with a remainder of about 300 cc. of cloudy fluid. The peritoneum was dull and hyperemic and dotted with innumerly tiny greyish-white nodules.

The intestinal loops were fused together with fibrin and formed pockets which contained pus. The dissection of the entire intestinal tract showed that the mucosa was intact and there was no perforation or tumor in the intestinal tract.

Chronic Peritonitis

This, then, represents a picture of a chronic peritonitis which evidently did not arise from a perforated viscus of the GI tract. Further examination revealed that the peritoneal surface of the tubes, ovaries and uterus were involved in the inflammatory process and on microscopic examination the characteristic picture of a tuberculous salpingitis was obtained.

We therefore are dealing with a chronic tuberculous peritonitis which arose in the tubes. There were a few small foci of tuberculosis in the lungs.

In Genital Tract

However, I consider these secondary hematogenous lesions and I believe that the primary tuberculosis originated in the genital tract. The examination of the liver showed it to be diminished in size and of increased consistency.

A few coin-like nodules were noted on the surface of the liver. Grossly the hepatic pattern appeared to be normal.

Microscopic examination revealed a sub-acute mild inflammatory process in the liver associated with an early cirrhotic pattern.

The examination of the heart showed moderate coronary sclerosis which corresponds to the clinical findings.

Summary

In summary then, we have here a patient with two diseases; a tuberculous peritonitis and a cirrhosis of the liver.

The partial intestinal obstruction was obviously due to the fibrous adhesions which are so characteristic of tuberculous peritonitis and the increase in the white count also suggests a chronic peritonitis.

The presence of fluid in the abdomen was due to a combination of inflammatory exudate and ascites from liver disease.



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SEARLE

Provincial Physicians to Meet in Torreon

The Fourteenth Reunion of Provincial Physicians will be held August 28, 29 and 30 at the Hotel Rio Nazas in Torreon, Coah., Mexico. Around 400 physicians are expected to attend. Inauguration ceremonies will be held on Wednesday the 27.

There will be technical exhibits. Dctors are requested to submit summaries of their papers by July 15. Address these to the Comite de Publicidad y Propaganda, Rodriguez 351 Sur, Desp. 111, Torreon, Coah., Mexico.

Psychosomatic Academy to Meet Oct. 9-11 in New York

The fifth annual meeting of The Academy of Psychosomatic Medicine will be held Oct. 9-11, at the Park Sheraton Hotel in New York. The program will be devoted to "The Psychosomatic Aspects of Internal Medicine" and will include formal papers, panel discussions and luncheon conferences.

The meeting will be open to all scientific disciplines, as well as psychologists, social workers and nurses. Information may be obtained from Dr. Bertram B. Moss, Suite 1035, 55 East Washington St., Chicago 2, Illinois.

Coming Meetings

New Mexico Chapter, American Academy of General Practice, Summer Clinic, Navajo Lodge, Ruidoso, July 21-24, 1958.

University of Colorado School of Medicine, Postgraduate Course, Ophthalmology, Denver, July 21-24, 1958.

Western Association of Railway Surgeons, annual meeting, Seattle, Aug. 7-9, 1958.

International College of Surgeons, Western Regional meeting, The Riverside Hotel, Reno, Nevada, August 21-23, 1958. For information, write Dr. Leo D. Nannini, 190 Mill St., Reno.

Provincial Physicians, 14th Reunion, Hotel Rio Nazas, Torreon, Coah., Mexico, Aug. 28-30, 1958.

American Fracture Association, annual meeting, Oklahoma City, Oct. 1-3, 1958.

Academy of Psychosomatic Medicine, fifth annual meeting, Park Sheraton Hotel, New York, Oct. 9-11, 1958.

Southwestern Medical Association, annual meeting, Tucson, Oct. 23-25, 1958.

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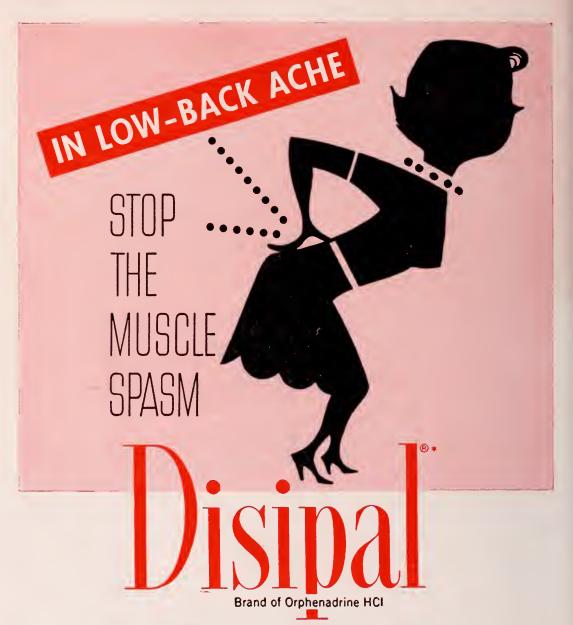
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due to accidents	5	3 "excellent"	2		
Herniated disc	8	6	2		
Acute fibromyositis Torticollis	8	8	_	1	Approximately shortened and a second shortene
STUDY 4 ⁶ Pyramidal tract and acute myalgic		''significant''			The The Part of the Control of the C
disorders	30	27		2	1
TOTALS	138	104 (75.3%)	28 (20.3%)	recursamel ar frame meller film marmille m	2



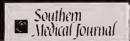
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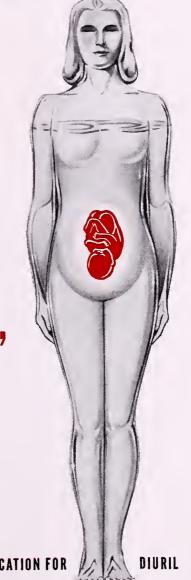
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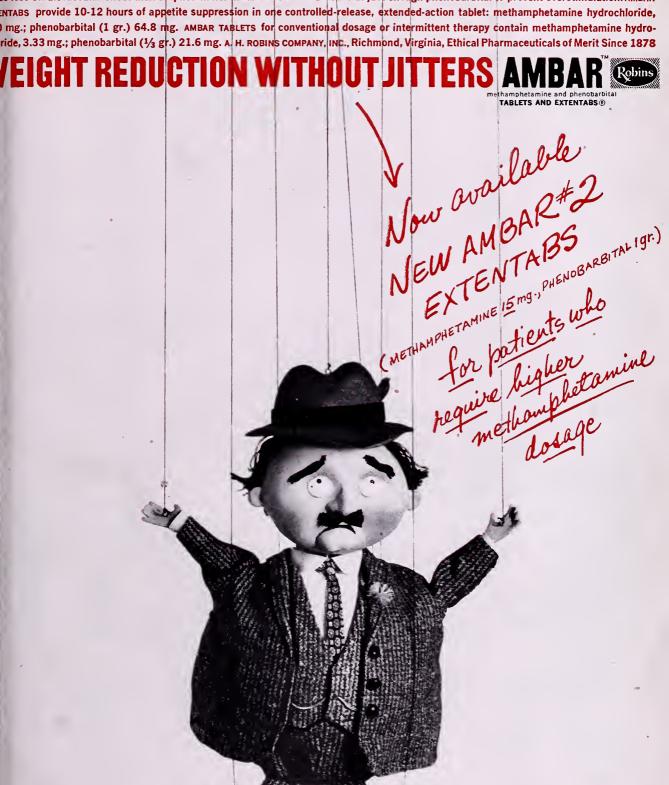
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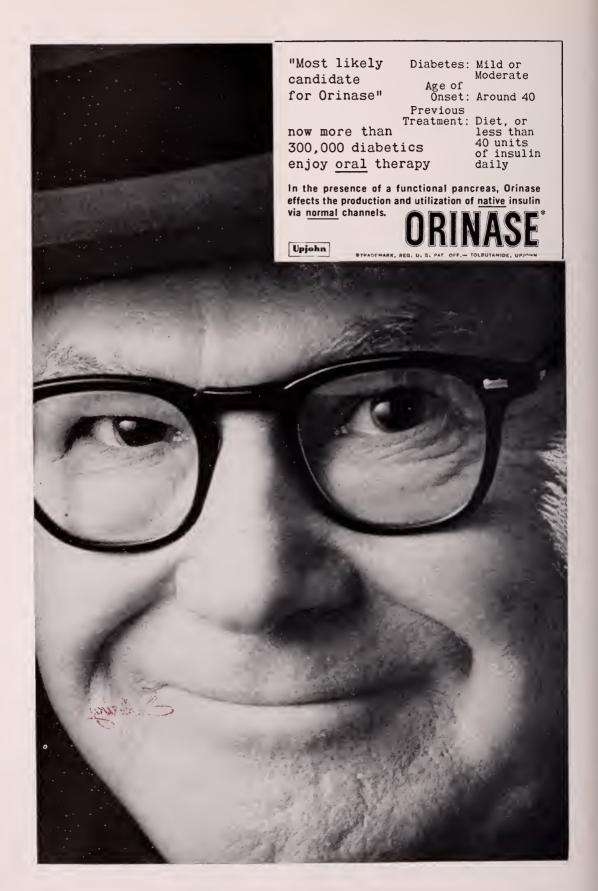
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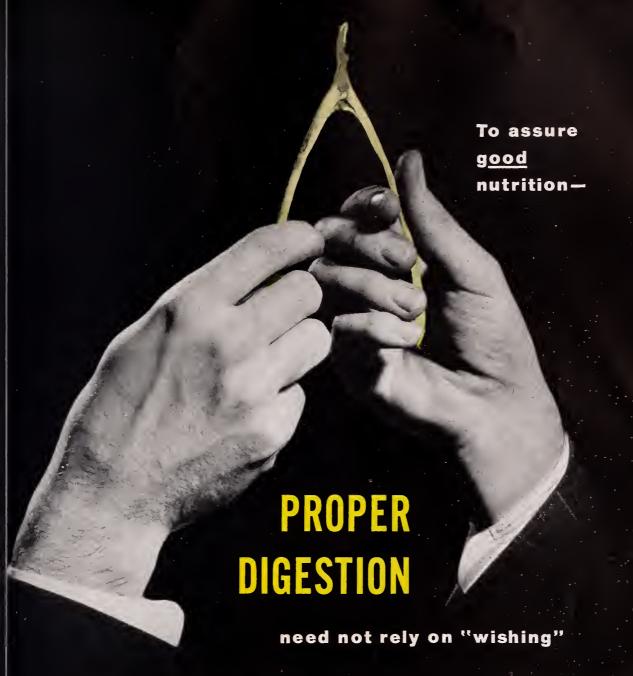
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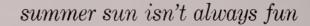
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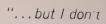
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No. 8



Some Contemplations of a College President about Medicine*

By Grady Gammage, President. Arizona State College, Tempe

An invitation to renew my acquaintance with many of you and to meet some of you for the first time was welcome in spite of misgivings that I should fail to do justice to the occasion.

The life of a college president is a most stimulating and challenging occupation and is made so particularly by close associations with the learned professions and the students we are educating.

Thoughts about a medical school in Arizona have been in the minds of physicians and educators of our state for many years. It is only with the recent remarkable industrialization, urbanization, and growth of our institutions of higher learning, in addition to the presence of large numbers of highly qualified physicians, that consideration of the development of a medical school has become practical. An offer of a large sum and other smaller gifts to Arizona State College to formulate a two-year medical school as a starter is also a practical matter.

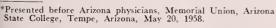
It is a most comforting thought to know that the ideals of the medical profession are no different now from what they were when four centuries before the birth of Christ, Hippocrates, the father of medicine, wrote his celebrated passages that constitute a noble professional creed.

Your task has always been the same: to promote health by preventing illness and curing it. Every society required of its doctor that he have knowledge, skill, devotion to his patients, and similar qualities. But his position in society, the tasks assigned to him, and the rules of conduct imposed upon him have changed in every historical period. They were determined primarily by the social and economic structure of society and by the scientific and technical means available to medicine at the time.

The physician's success or failure depends not only upon his knowledge and skill but upon the responsiveness of his community including endless social, economic, religious, philosophic and political factors.

In primitive society, the medicine man was and still is a combination of sorcerer, priest and physician.

Babylonian society and the character of its science determined the physician's position to be





Dr. Gammage

subordinate to theology, so the physician was primarily a diviner and a priest.

The Hippocratic physician of the Golden Age of Greece was a craftsman like the shoemaker, the blacksmith, or painter. Like any other craftsman he was trained through apprenticeship. He selected a master, paid him a fee and spent a number of years with him. Most places were served by wandering physicians; medicine, like other arts and crafts in those days, being primarily an itinerant vocation.

In the early days of ancient Rome, physicians were mostly Greek slaves. The big landowners had slaves who were skilled in definite crafts. Those who knew how to treat disease brought as good a price on the market as an eunuch. Julius Caesar, in 46 B. C., presented all freeborn Greek physicians on Roman soil with Roman citizenship, a most prized possession of the times. This led to improving the status of the physicians in the community.

During the Middle Ages conditions of medical practice changed radically. The surgeon who worked with his hands remained a craftsman and

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learned his art from a master, often his father. As a rule, physicians were clerics in the early Middle Ages, and the church provided a living for them so that they could practice medicine as a charitable service. From the Eleventh Century on, laymen entered the profession more and more and this created a new situation, because the laymen had to make a living.

Physicians teaching medicine established the universities of Salerno and Montpelier. The medical faculty of the medieval university trained physicians and controlled their activities, thus gradually assuming the same functions as the medieval craftsmen's guilds.

Conditions changed again, and quite radically, in the 16th Century, because of the rise of a new economic order, appealing to the individualist in man and calling for free initiative, free trade, and free competition. Medical faculties gradually lost their power to control medical practice which in many countries was state-controlled. State medical boards were founded. They licensed physicians to practice and doctors also became governmental advisers in matters of health.

The physician's attempt to preserve medieval ideals of charitable service in a world ruled by iron economic necessities has been nothing short of heroic. His situation became even more complicated during the 19th and 20th Centuries because of increased populations, industrialization and the increased demands of the needy.

At the same time, the cost of medical care was rising, largely because of the amazingly rapid progress of medical science. When this was generally realized, medical societies were organized, and codes of ethics and etiquette were formulated to safeguard the profession against some of the worst features of competition, such as advertising, underbidding, fee-splitting, etc.

The marvelous heritage of medicine has certainly been maintained and improved with recent generations, and I consider Arizona fortunate to have the caliber of physicians it has. We at Arizona State realize that the Arizona Medical Association wants a first-class medical school. If this were made widely known, it would benefit the public relations of the medical profession and would help Arizona citizens to meet this problem.

When and if the Board of Regents and the Arizona Legislature give Arizona State permission to proceed with the development of a two-year medical school, I shall appoint a committee to scour the country for the most qualified Dean of the medical school we can find. The Dean and his committees will then do the same with regard to selection of a faculty for the basic sciences of medicine.

From long experience I know that the reputa-

tion of a school is developed by individuals. If we provide the proper academic atmosphere and facilities for teaching and research, then top-flight talent from other centers will not be difficult to obtain because of our favored geographical location. It will be my job to help in providing that atmosphere and in securing the physical resources necessary.

With the continued growth of our area and success of the two-year medical school, we may in the not-distant future be able to establish a four-year school. Perhaps it will occur faster than we think.

We do not at this juncture envision a university hospital. When one goes into the hospital business, costs become high. Arizona has highly skilled physicians and surgeons who can compare well with clinical teachers anywhere. These men and women could be organized into the clinical faculty and utilize the existing hospitals. Such a plan would greatly strengthen both public and private hospitals, and has been used most successfully at Northwestern University Medical School in Chicago, among other great medical institutions.

We realize people may differ, but we need all the light that can be shed upon this issue. It is in that spirit of searching for the truth that I discuss, for a few minutes, some of the factors in the problem before us.

The *problem*, specifically, is for the Regents to accept or reject a gift of \$565,700 offered by Mr. Walker McCune for the operation of a two-year medical program at Arizona State College. This amount will provide for a planning year and two years of instruction.

The *proposal* for a medical school came about as a result of the request of the Medical School Committee of the State Medical Association for a report on resources and facilities, staff and costs for a two-year medical school at Arizona State.

The report was submitted in January, 1958, and included among other items, the operating budget required for a two-year school. The report outlined the space that might be made available in two new science buildings now under construction and the faculty and staff required.

The cost of medical education, all authorities seem to agree, is not readily understood, nor is it easily determined. For example, Deitrick and Berson in their book, "Medical Schools in the United States", make this statement: "The term 'cost of medical education,' as used today, is a broadly inclusive term without precise meaning. It often includes the education of many other categories of students in addition to medical students. The term is so vague that it cannot be used intelligently in discussing the costs of educating a medical student

"Estimates of the cost of educating a medical

student that have been published are misleadingly high and are not compatible with the facts revealed by the survey."

Medical schools assume three functions: Education, research and service. Deitrick and Berson again state: "The various figures purporting to show the cost of educating a medical student are misleading and should not be relied upon. A realistic determination requires a clear decision as to which of the activities of the schools are essential to the education of a medical student and in what amount, which are activities undertaken by the schools primarily as a service to the public, and which of them are services to the university as a whole or to other colleges on the campus."

The journals of the American Medical Association point out the same difficulty in getting reliable figures on cost.

However, the cost of a two-year medical program can be more clearly delineated. The extras are not involved. The McCune gift and the budget submitted by Arizona State are based on conferences and correspondence with the Deans of medical schools and a detailed study of their budgets and programs.

Thus, the operating costs in this proposal are guaranteed for three years. A building and equipment will be required in two to five years. The estimated cost would be one to two million dollars. If we get the program started, the building and equipment will be forthcoming. In the meantime, we have two new science buildings costing close to \$3,000,000 with a grant of \$250,000 for research facilities and \$375,000 in appropriations and grants for equipment and medical library.

What is the alternative to starting now? It is to depend upon the Western Inter-State Compact which, under the leadership of Dr. Melick, Mr. Alex Raisin and President Harvill is doing an excellent job of the kind it was intended to do.

But here is what WICHE, itself, says on page 16 in its 1957 Annual Report: "Despite the expense and the strain on state resources, some states can and should build and operate new medical and dental schools without unnecessary delay.

"Although the Student Exchange Program helps to compensate for the shortage of facilities, it cannot offer any final solution. It provides for the sharing of existing space in the professional schools, but it has not created enough new space. A sharing of scarcities is not an adequate answer to the mounting pressure of population on western education."

It may be added that this points directly to Arizona because Arizona is the largest of the six Western states without a medical school and Arizona has the largest metropolitan area—the seventh in size in the West.

The accepted index of *supply* of doctors is the number of physicians per 100,000 population. In 1950, Arizona had 110 per 100,000 population. The Western states as a whole had 137 and in the United States it was 129.

Arizona ranks fifth in the Western states in the number of freshmen per 100,000 population in medical school. Arizona has 4.2; Oregon, 4.3; Wyoming, 5.2; Colorado, 5.2; Utah, 6.6; the United States, 4.7. In other words, Arizona does and can furnish a potential supply of freshmen students. However, now they must be trained elsewhere. Arizona now has approximately 87 students in medical schools and 26 of these are in WICHE schools.

What is the likelihood that these students can continue to be trained outside of Arizona and that the fifteen freshmen spaces now available under WICHE will continue?

The 1957 report of WICHE states: "Existing schools in the West are not numerous enough or large enough to take care of all the young men and women who want to train for the health sciences. Each year, growing numbers of students are turned away because there is no room. In the absence of some major expansion, Western schools will simply not be able to meet the needs of the region for health science personnel."

As the population increases throughout the United States and particularly in the West and the number of students seeking admission to existing medical schools increases steadily, the opportunity for admission will be steadily *restricted*, unless new schools are established.

There are nine medical schools in the West and only two in the Rocky Mountain states. Under WICHE places are provided for 15 students for each four years. In 1946, 43 Arizona freshmen students were admitted to 20 different medical schools.

The demand for doctors in Arizona will continue to increase. The present ratio of doctors per 100,000 population is 124. In order to maintain this ratio, it will require in 1965—1,863 doctors; 1975—2,732 doctors, or an increase of 1,303.

A two-year medical school authorized next year and started in 1960 with a quota of 35 students per class could conceivably produce 30-35 doctors by 1968; 90-105 doctors by 1970; 204-280 doctors by 1975; if all who completed training remained in Arizona. Then Arizona would still have to depend on 2,400 physicians coming in from the outside by 1975. Arizona must get from the outside a greater share of doctors than in the past and this will be at a time when the national supply of physicians in relation to population is decreasing.

To put it another way, physicians will have to migrate to Arizona in far greater numbers than they have at any time in the past. This raises the question: can Arizona delay longer to assume a share of the responsibility in meeting the demand?

Nationally, the journal of the American Medical Association reported that, ". . . in 1975, there would need to be 2,000 more physicians—graduated per year—than are currently graduated annually from medical schools in the United States to maintain the existing physician-population ratio. This . . . would necessitate the addition of about 25 new medical schools . . ."

It certainly seems logical that Arizona, a rapidly growing state and the largest state in the West, now without a medical school, should provide one of the needed 25 new ones.

The responsibility for providing for all types of professional education rests with the individual states. Arizona has assumed this responsibility in some professions. It will assume it in medicine. The only question is when and how.

The proposal is to begin *now* and with a twoyear medical school program. The following comparatively recent four-year schools started as twoyear schools: West Virginia, Missouri, Mississippi, Utah, Oklahoma, North Carolina, Wisconsin, Bowman Gray Medical School at Wake Forest College and others.

Dr. Abraham Flexner issued the Carnegie study of medical education in the United States and Canada in 1910. He described three eras in medical education: 1. The era of dogma, 2. the era of empiricism, 3. the era of science.

The great influence of science on medicine in the third era led to a new concept in medical education. This was stated by Dr. Flexner in 1910 who said: "For purposes of convenience, the medical curriculum may be divided into two parts, according as the work is carried on, mainly in laboratories or mainly in the hospital . . . In general, the four-year curriculum falls into two fairly equal sections; the first two years are devoted mainly to laboratory sciences . . . the last two to clinical work . . ."

Since the widespread revision of medical education following the study of Dr. Flexner's committee, the division of the curriculum into a two-year program has become standard. This permits and encourages the operation of two-year schools of medical sciences in preparation for clinical training.

The picture has changed in the last fifty years. The vertical plan of incorporating some clinical training in the first two years is now being tried with success. But in the main, the curriculum of the first two years comprises the basic sciences. Again, I say with the excellently trained physicians in this community, there will be no problem in operating a two-year school on the vertical plan.

I am keenly aware of the urgent problem of medical education in Arizona. And I am confident that Dr. Flexner's basic philosophy of two-year medical science schools is even more appropriate today.

I do not bow to Dr. Flexner as a modern Hippocrates or Galen. My own personal studies and those of our staff and advisers from within the local medical profession and nation-wide from other schools, foundations and associations of the profession convinces me beyond the slightest doubt that we are ready now for a two-year medical school. This will help fill the several hundred vacancies in the upper two years of the four-year medical schools. The need is now.

The facts I have given are plain, simple and challenging. There are many more.

Upon these facts must rest the judgment of the need for medical education in Arizona.

Need is a value judgment made by responsible and intelligent people in the light of facts.

In my judgment, the facts are clear and incontravertible as to the need now for a two-year medical school in Arizona.

Let it be clear that the Association of American Medical Colleges endorses the development of two-year medical schools. At their meeting a year ago, they adopted a resolution which states: "In view of these facts and in view of the lower capital and operating expense of two-year programs, the Association of American Medical Colleges encourages universities with strong leadership and necessary resources to establish new programs in medical education which would offer the first two years of the four-year medical course."

And more recently, this same Association in stressing the need for medical education stated: "It is possible that some existing schools can, with new facilities and larger faculties, accept additional students, but the need will not be met completely in this manner. The large contribution in numbers of students will come, as it has in the past, by the establishment of new schools."

And further it states: "The Association of American Medical Colleges urges its member institutions to survey their potentialities and capacities in light of the future need for health personnel, and urges universities in large urban centers, now without a medical school to give serious consideration to the establishment of one."

And finally, WICHE in their 1957 Annual Report emphasizes the danger of delay and inaction: "Some Western states with growing population, growing resources and growing education cannot indefinitely use the exchange program as a substitute for building new facilities to meet the needs of their citizens. The future is already upon us. A medical school authorized by a state legislature

in 1959 could not graduate its first class until 1967. The need for planning and action is now."

In light of the evidence, I return to the problem now before the Board of Regents, the medical profession and the people of Arizona, and I urge that the gift be accepted, the way prepared for other gifts and that a recommendation be made to the legislature that at least a two-year medical school be authorized at Arizona State at Tempe.

Now, in conclusion, may I say as the 17th Century had its golden age in medicine, so now it seems to me we are entering a new golden age.

The poet tells us, "New occasions teach new duties. Time makes ancient good uncouth." Changing times bring new responsibilities and often makes the old pattern of thinking no longer valid.

The scope of medicine has broadened immensely with passing years. The physician's advice is needed at some time or other in nearly every field of human endeavor. According to Arnold J. Toynbee, noted historian, a person, community, nation or civilization must be challenged in order to create significant progress. Shall we all together accept the challenge before us?

The purpose of a university includes the preservation and extension of knowledge. To do this, it must be alert to emerging and changing needs. It must sharpen the minds of men, quicken their spirits, lift their horizons and inspire them to think greatly, work diligently and serve nobly, as exemplified in the Hippocratic oath.

In my lifetime, I have seen our country's population grow by 100 million.

Today, here we are watching a westward movement of population as dramatic as the original westward movement so well-known in our history. The same resourcefulness, the same courage, the same vision and the same faith are called for now in meeting our problems as was needed when the frontier was rough and untained.

In my time in Arizona, I have seen the population grow from 200,000 to nearly 1,200,000 in 1958. Maricopa County will have 750,000 by 1965 -1,000,000 by 1978. If the present is any indication and unless all estimates of the future fail, we must use bolder thinking in our planning than ever before. No matter how optimistic we have been in the past the Maricopa County planning group "Plan for Progress" states all estimates have been exceeded. It is wonderful to live in an old community, but it is thrilling to be a part of a new, growing and dynamic community where we can help build for the future. Sometimes in similar situations, men have wavered, have been doubtful and have failed.

Now we confront one of those rare opportunities, if we can all join hands and take another new step forward. Not often does a medical school

spring full-fledged from the brow of Jove as did Minerva. But step by step, it is conceived, it is born, and it grows. The fullness and greatness of its ultimate stature depend upon the generosity and the greatness of those who nurture it.

Our nation is growing in population. Our state is growing faster than the nation. Our county is growing faster than the state. Everybody recognizes the emerging need.

A generous offer has been made. Other offers will be forthcoming. When it is accepted and the school authorized, the medical profession will have an opportunity and an obligation to help in creating something of which we can all be proud and the thing I am attempting to do is to be helpful and serve in any way I can to bring this into realization.

You of the healing arts have always carried a heavy responsibility. In ages long past, man prostrated himself before the magician-healer to contravene the laws of nature for health in body, mind and spirit. Magic has evolved into science, the magician into the physician, the teacher and the clergy. Your responsibility to raise prostrate man remains the same.

In lifting the prostrate, you become his object of faith with added responsibility. You and the educator, the clergy, and the layman, too, share the responsibility of influencing the minds and actions of people. I congratulate you in the way you have always shared and are still sharing in this burden of moulding the future of young men and women in all walks of life, and especially in medical education. May you grow in wisdom and in the spirit of Hippocrates as you continue your noble efforts.

In humility, I salute the medical profession and all those in the healing arts. May God bless you and guide you in your ministry of healing and in the part you play in making provisions for those who are to follow in your footsteps.

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ORTHOPAEDIC SURGERY NOTES

Details of Treatment of Trauma to the Hand

By Morton H. Leonard, M. D., F.A.C.S., El Paso

The principles of treating injuries of the hand have been outlined many times. They include avoiding further contamination, handling of tissues gently, etc. In addition, knowing certain details is helpful in caring for these injuries. I shall outline some of them.

It is a cliche that knowledge of the anatomy of the hand and forearm is essential to treating injuries of these parts. Reference to such books as Grant's "Atlas of Anatomy" (2) and Bunnell's "Surgery of the Hand" (1) is very useful. Dissection of the cadaver and repeated observations at the operating table are of much greater use.

A portion of the armamentarium needed is illustrated (Figs. 1a, 1b and 1c).



Fig. 1a. Pneumatic Tourniquet and Esmarch bandage used to obtain a dry field.

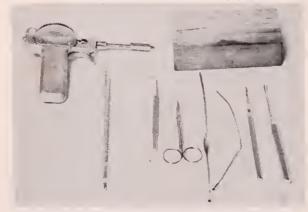


Fig. 1b. Small drill, Kirshner wires, dental probe, iris scissors, tendon passers and small elevators are essential. The sterilized wood block is useful.



Fig. 1c. Wire (No. 32) for tendons, malleable needles, fine silk for nerves and braided wire for skin closure are used.

The incisions commonly used are found in "Surgery of the Hand."

Useful Dressing

Thermal and chemical burns of the hand should be treated by early debridement and closure with skin grafts, pedicles or both if necessary. It is most important that the hand be maintained in a position of function. A useful pressure dressing consists of numerous layers of Kerlix followed by an elastic bandage. This should be laid on; not applied as an Esmarch bandage is.

In electrical burns it is wise to wait for demarcation. Here tissue destruction is much greater than is at first evident.

A useful operation when there has been considerable destruction of tissue is to perform interphalangeal shortening and fusions. This will sometime avoid amputation of a digit (Figs. 2a and 2b).

Grease gun injuries are not comon; but they occur and should be cared for immediately and radically. The grease is injected at tremendous pressure and dissects along fascial planes. The



Fig. 2a. Note the flexion contractures of the proximal interphalangeal joints of fingers from loss of extensor mechanism secondary to deep burns of their dorsa. The metacarpophalangeal joints are contracted in extension.

part should be laid wide open to permit drainage; otherwise tremendous tissue destruction results from the irritant action of the paraffin.

Crushing Injuries

Not uncommonly the hand is crushed without a break in the skin. Treatment should be directed toward preserving the integument and preventing hematoma formation. Pressure dressings as described earlier, elevation and the application of ice are of value. Antihistamines seem to be of value in minimizing swelling.

Wringer injury is a crushing injury to which has been added frictional burning. It is common in children. In my own experience, I have seen very few fractures associated with a wringer injury. Skin loss should be made good with early debridement and early coverage with graft or pedicle. Hematomas should be drained, not aspirated.

Compound injuries of the hand require early closure. If the injury is severely contaminated or

treatment has been delayed, it is sometimes better to leave the part open and do a secondary closure. Adequate debridement followed by skin grafting if necessary should be done.

Ice application, pressure, elevation and antihistamines are used as indicated to avoid hematoma formation and swelling. Useful to me in treating compound injuries is the pinning of fractures.

The disadvantage of burying foreign material, I feel, is compensated by the ease of handling the fractures and the rest at which the tissues are placed.

Finger Tip Loss

Loss of the tip of the finger is a common injury. It can be treated with a free graft from the forearm or revision of the amputation. In a working man, if the injury is to other than the thumb or the index finger, revision is usually the easiest and most conservative approach since free thickness grafts are sometimes lost and a tender finger tip frequently results.



Fig. 2b. Capsulotomies of metacarpophalangeal joints combined with shortening and fusion of proximal interphalangeal joints gave useful grasp.

It is often hard to decide whether to try to salvage or to amputate a severely injured digit. An attempt at salvage is indicated unless the part is severely contaminated and its presence endangers life or function of intact structures. One can always amputate.

Fractures and dislocations are common in phalanges. Fractures of the tuft of the phalanx if open should have the small ossicle excised. If they are closed, the ossicle should be left in. If the finger tip remains painful, the ossicle can be excised at a later date.

Shaft fractures of the phalanx which are not displaced constitute no serious problem of treatment. If they are displaced, such fractures are difficult to treat. If traction is used, one should pay careful attention to rotatory alignment (Fig. 4) and to the degree of traction (Figs. 5a and 5b). A useful method of fixation is crossed Kirschner wires (Fig. 3).



Fig. 3. Cross pins used to immobilize a fractured proximal phalanx. Distraction must not be permitted.



Fig. 4. The fracture of the proximal phalanx on the ring finger was treated with traction. Union ensued with both volar angulation and rotatory malignment. These were corrected by osteotomy.

Displaced fractures of the neck of a metacarpal can be reduced by breaking up the impaction and by then pushing dorsalward on the proximal phalanx with the metacarpophalangeal and proximal interphalangeal joints bent to 90 degrees. Position is then held by placing longitudinal wires across the head into the shaft.

Fractures of the metacarpal shaft which are undisplaced or moderately displaced are treated by applying plaster. Fractures of the metacarpal shaft which are markedly displaced can be opened and secured with a loop of stainless steel wire. Side by side pinning of one metacarpal to the other has been used successfully.

Fractures of the base of the metacarpals in minor fingers are ordinarily easy to treat and carry an excellent prognosis. Plaster for a three week period usually suffices. However, fractures of the base of the first metacarpal involving the joint surface (Bennett's fracture dislocation) should be treated vigorously or disability results.

In fresh cases traction is applied through the proximal phalanx. Open reduction has been described. Position can also be maintained by a closed reduction and blind pinning utilizing a wire through the shaft of the first metacarpal into the greater multangular to maintain the reduction. If



Fig. 5a. Non union of this fractured first metacarpal was due to many factors including overpull.



Fig. 5b. After bone graft.

a painful joint results because of undertreatment arthrodesis is usually indicated (Figs. 6a and 6b).

Flexor Tendons

Injuries to flexor tendons in the forearm can be sutured with silk or braided wire. Distal to the wrist creases, the Bunnell pullout is used. Toward the proximal end of the palm, primary suture will give a good result. I prefer to remove the distal portion of the flexor sublimis and anastomose the proximal end of the flexor sublimis or flexor profundus as a motor to the distal end of the flexor profundus.

The area of anastomosis is then covered with a



Fig. 6a. Fracture dislocation base of first metacarpal which had been diagnosed as a sprain.

lumbrical. In the distal portion of the palm — that is, from the distal palmar crease out to the proximal interphalangeal joint — it is usually necessary to supply a free graft so that the area of suture will not lie in "no man's land." "No man's land" is the hard, fibrous tunnel which runs from the distal crease of the palm to the proximal interphalangeal joint.

Palmaris longus or one of the toe extensors can be used as a tendon graft. Beyond the proximal interphalangeal joint, a pullout wire or a free graft can be used. A useful maneuver is to sacrifice the small segment of tendon and to reattach the profundus tendon at its insertion. This will result in some flexion contracture but will restore flexion to the finger.

Whereas lacerations of the flexor tendons of the fingers in the palm do not ordinarily constitute a problem of recovery of the proximal end of the tendon, lacerations of the flexor pollicis longus do



Fig. 6b. Arthrodesis resulted in a painless thumb.

since the proximal end frequently retracts above the wrist. One should be ready to open the forearm to recover this end. Applying an Esmarch bandage in reverse will sometimes milk the proximal end of a tendon into one's field.

Extensor Tendons

Lacerations of extensor tendons do not present the problem of gliding as do those of the flexors. An excellent suture is a figure-of-eight wire (Bunnell). In the forearm one can use silk or braided wire.

Over the dorsum of the hand, one frequently can anastomose the distal tendon end into a neighbor to restore extension to the finger. In the fingers themselves, the figure-of-eight suture is useful.

A frequent problem is that of a mallet finger. One technique is to have the patient hold the proximal interphalangeal joint in flexion and the distal interphalangeal joint in extension by pinching. A volar splint is applied and secured to the finger with roller bandage. This bandage is then removed and plaster substituted. It is essential to incorporate the splint into a long arm cast to prevent its sliding off.

Neural injuries are mentioned last to emphasize their importance. The hand is a tactile structure: It is one of the five senses. Nerves should be repaired. It is vital to use the finest silk and to pass it only through the epineurium. Since the digital nerves are not mixed, regeneration is excellent.

Summary

The treatment of injuries of the hand requires a knowledge of the anatomy and an adequate armamentarium. Details of management of burns, grease gun injuries, crushing trauma, fractures, tendon and nerve injuries are related.

References

- Bunnell, Sterling: Surgery of the Hand, 3rd Edition, Philadelphia, 1956, Lippincott Company.
- Grant, J. C. Borleau: An Atlas of Anatomy, 4th Edition, Baltimore, 1956, The William and Wilkins Company.

American Fracture Association To Meet in Oklahoma City

The next meeting of the American Fracture Association will be at Oklahoma City, September 29 through October 1, 1958.

On September 29 a postgraduate instructional course will be given by the University of Oklahoma School of Medicine rated Category I under the rules of the Academy of General Practice. The

remainder of the time, Tuesday through Thursday, will be the regular program of the American Fracture Association. The meeting will be held at the Hotel Skirvin.

Dr. Duncan C. McKeever, Houston, president, reports that an excellent program has been arranged.

CURRENT THERAPY

The Hyperactive Carotid Sinus Reflex and Syncope: Brief Review and Case Report

By J. Edward Stern, M.D., El Paso, and Jack A. Bernard, M.D., F.A.C.P., El Paso

The purposes of this paper are to describe a case of syncope due to a hyperactive carotid sinus reflex; to review a few points in the diagnosis, classification, and treatment of the excessively strong carotid sinus reflex; and to outline some currently understood points in the differential diagnosis of syncope.

The physiology of blood flow as related to the erect posture—the chemoreceptors in the carotid and aortic bodies, the pressoreceptors in the carotid sinuses, reflex arcs involved—is not discussed.

Case Report

Case of hyperactive carotid sinus, vagal type: A. H., 53 year old male, stated that on May 17, 1952, at about 10:00 P.M. while sitting in a chair he felt faint, dizzy, slightly nauseated, and lost consciousness for four or five minutes. He had been working rather hard, had been under considerable emotional strain for some time, had had a frightening experience during an air trip, and was worried about his heart because several close friends and relatives had recently died of cerebral or coronary vascular accidents.

In the course of six weeks he suffered three similar attacks of fainting and became progressively more upset and depressed.

A review of systems indicated that he was "a little groggy at times from smoking too much" and that his "glasses didn't seem to fit as well as formerly." He gave no history of any previous cardiorespiratory symptoms. He had noted no chest pain, dyspnea, ankle edema, or previous syncopal attacks. There was a high incidence in the family of diabetes and of cerebrovascular accidents.

Physical Examination

Physical examination revealed a rather short white man who weighed 157 pounds. The arterial blood pressure was 155 systolic, 90 diastolic. Retinal examination showed a mild grade of arteriosclerosis, but no papilledema and no retinopathy. Examination of the heart revealed no enlargement; sounds were a little distant; there were no murmurs; the aortic and pulmonic second sounds were of equal intensity. The lungs were clear.

The liver, which was not congested, descended two centimeters below the right costal margin. Rectal examination revealed a moderately enlarged prostate gland. There was no edema of the extremities. Neurological examination was normal except for hyperactive carotid sinus reflexes which will be described further. There was a fairly severe degree of anxiety, depression, and psychomotor retardation.

Laboratory

Laboratory examinations give the following findings: Radiographic examination of the chest showed normal conditions. The electrocardiogram at rest was within normal limits, showing only a tendency to left axis deviation. The blood count showed: erythrocytes, 4,900,000; hemoglobin, 88.2 per cent (15 Gm.); leucocytes 17,000; with normal differential count.

Blood chemistry levels included: Cholesterol, 388; non-protein nitrogen, 26; uric acid, 10; glucose, 96 mg. per cent. Glucose tolerance test showed the following: ½ hr.—166 mg. per cent, 1 hr.—200 mg. per cent, 2 hrs.—227 mg. per cent with four plus urine sugar and at three hrs. 118 mg. per cent. Basal metabolic rate was minus 12 per cent. Urinalysis gave normal findings except for a moderate glycosuria.

Special examination of eye, ear, nose and throat gave normal findings. There was mild retinal arteriosclerosis. There was no evidence of labyrinthitis.

Increased Sensitivity

On June 7, 1952, carotid sinus stimulation revealed greatly increased sensitivity on the right. Massage of the right sinus produced syncope, a reduction in pulse rate from 102 to 58 beats per minute, and in blood pressure from 140 systolic, 90 diastolic to 90 systolic, 70 diastolic. (Figure 1).

On June 17, 1952, carotid sinus stimulation caused a pronounced alteration in the electroence-phalogram, somewhat more prompt and more obvious when the reflex was activated on the right (Figure 2b) than on the left (Figure 2c).

The basal record (Figure 2) showed a frequency of 13-14 cycles per second and a normal amplitude.

Stimulation of the right sinus produced a much slower record of four cycles per second (on which the original frequency was superimposed) and a large increase of potential. Stimulation of the left sinus produced rather similar changes. The alterations appeared first in the frontal regions and spread from there to the rest of the cerebrum.

The patient was advised to take phenobarbital, atropine, and Dexedrine, and to use a low fat diet. The question of electro-shock treatment for the relief of depression was deferred. Psychotherapy consisted of explanation. reassurance, and supportive interviews.

Psychologic Studies

On December 2, 1952, the patient was examined at the Johns Hopkins Hospital. Psychologic studies, including a Rorschach record, failed to reveal clear evidence of cerebral damage. The sensitivity of the carotid sinus was still present.

A mild grade of arteriosclerosis with some minor abnormalities in the stress electrocardiogram (Master's two-step test) and in the ballistocardiogram was believed to be present. It was agreed that there was insufficient indication for carotid sinus denervation. Medical and psychiatric treatment followed the conservative plan previously outlined.

The patient was re-examined on September 9. 1953, 16 months after the onset of symptoms. There had been no syncopal attacks in six months;

mood, outlook and spontaneity were normal. The patient considered himself well. On August 29, 1957 the patient was re-examined and found to have a mild attack of gout involving the right big toe. At this time the blood uric acid level was 6.6 mg. per cent. Other findings were unchanged from the previous observations: otherwise he considered himself entirely well.

Valuable Levers

It is worthwhile to note that two valuable levers for psychotherapy were available in dealing with this problem: the patient's belief that the attending physicians understood the (benign) nature of his complaints, a belief which was fostered by the fact that the syndrome could be reproduced at will.

Diagnosis, classification, and treatment of hyperactive carotid sinus reflex: This case of syncopal episodes due to a hyperactive carotid sinus reflex might have been interpreted as one of successive small strokes. It is submitted to illustrate particularly the electroencephalographic changes.

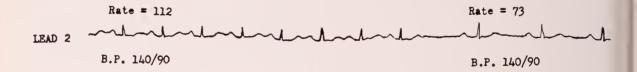
A review of the earlier literature of the carotid sinus problem may be found in Stern's report; a review of the later literature, including electroencephalographic data, in Engel's monograph.

Common Symptom

Fainting, or syncope, often referred to by the laity as "black-out" is a common symptom. In the last two decades, beginning with the teachings of the Heymanns abroad and of the late Soma Weiss

ELECTROCARDIOGRAM

Left Carotid Sinus Massage



Right Carotid Sinus Massage



Fig. I See text

in this country, and, much more recently, with the monograph of Engel, it has become possible to analyze with considerable precision some of the causes of syncope.

The use of the sphygmomanometer, of the electrocardiograph, of glucose tolerance tests, of the tilt table, and of Hans Berger's invention, the electroencephalograph, have contributed to progress in this field.

Study of the psychosomatic aspects of these problems also has resulted in important advances of knowledge.

The carotid sinus is irritable in a fair proportion of patients, but in only a small proportion does this irritability give rise to clinical symptoms, the most obvious and alarming of which is syncope.

Three Types

There are three clinical types, not mutually exclusive, of hyperactive carotid sinus reflex: 1. The vagal or cardioinhibitory type in which bradycardia is striking. 2. The vasodepressor or hypotensive type in which arterial hypotension occurs. 3. The cerebral type in which syncope and other symptoms occur without significant alteration in the pulse rate or arterial blood pressure.

Some cases formerly regarded as belonging to the cerebral type were undoubtedly examples of arteriosclerotic occlusion of a carotid artery. Fainting occurred if the opposite, patent carotid was compressed.

Testing the carotid sinus is, in the authors' view. primarily an effort to reproduce a clinical syndrome; secondarily, an effort at more precise classification.

Method Important

The method of identifying the hyperactive carotid sinus reflex is important. The carotid sinus is located at the origin of the internal carotid artery and is best identified with the patient recumbent. The test is carried out with the patient in a sitting position.

In order to stimulate the sinus, the examiner's fingers should be gently curved, applied anterior to the sternomastoid muscle, and used to massage the structure for approximately 30 seconds. Only one sinus should be treated at a time. With the patient recumbent, the vasodepressor (hypotensive) response is minimized. With the patient atropinized, the vagal response is minimized. With the sinus desensitized by procaine, all types of response, including the cerebral, are abolished.

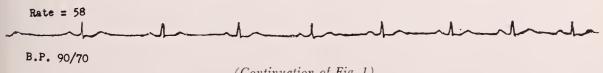
The sinus should be massaged, not compressed. Compression of the common carotid arteries is a test of the competence of the cerebral circulation; it is not a test of the sensitivity of the carotid sinus.

Success in diagnosis usually depends first, on a detailed history; second, on a thorough general and neurological examination; and third, on efforts to reproduce the patient's symptoms.

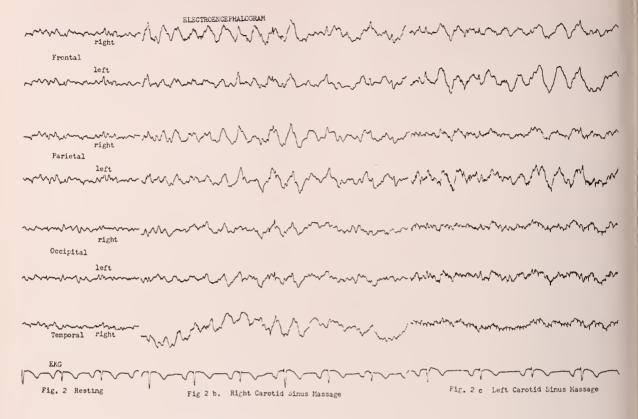
Differential Diagnosis

Differential diagnosis of syncope and fainting: Many conditions may produce faintness, lightheadedness, giddiness, loss of consciousness, and organic brain illnesses (little strokes, etc.). They include:





(Continuation of Fig. 1)



1. Hyperventilation syndrome and its variants; 2. hysterical fainting; 3. epilepsy; 4. vasodepressor or hypotensive episodes; 5. postural hypotension;

6. Meniere's syndrome of the severe type; **7.** hyperactive carotid sinus reflexes; **8.** hyperinsulinism and dysinsulinism.

Differential diagnosis, based on the foregoing can be pursued in a reasonably methodical way as outlined by Engel.

Summary

A case is presented of the hyperactive carotid sinus reflex, predominantly of the vagal type with syncope, bradycardia and transient electroencephalographic changes. Anxiety and depression were prominent features.

Medical treatment and superficial psychotherapy produced great improvement and disappearance of all symptoms. A brief review is furnished of the problem of hyperactive carotid sinus reflex and of the differential diagnosis of syncope.

Bibliography

Weiss, Soma, and Barker, J. P.: The Carotid Sinus Reflex in Health and Disease: its Role in the Causation of Fainting and Convulsions, Medicine 12: 297 (Sept.) 1933.

Stern, J. Edward: Abdominal Manifestation of the Hyperactive Carotid Sinus Reflex: JAMA 110: 1986 (June 11) 1938.

Engel, G. L.: Fainting, Charles C Thomas, Springfield, Illinois, 1950.

Railway Surgeons to Meet In August in Seattle

The Western Association of Railway Surgeons for whom SOUTHWESTERN MEDICINE is official journal, will hold their annual meeting Aug. 7-9 in Seattle.

Reservations are being scheduled for the Seattle Aqua Follies and the Gold Cup hydroplane races. An interesting scientific program has been arranged.

Side trips are available to the Bremerton Naval Yards and Vancouver and Victoria, British Columbia.

APHORISMS and MEMORABILIA

Miscellaneous Truths and Concepts

- 1. "If, however, a single aspiration provides nondiagnostic material when the presence of a disorder of the hemopoietic system known to have a characteristic bone-marrow pattern is suspected, multiple sites should be used to obtain more material." The Medical Clinics of North America, July 1956, Gertrude Pease (Mayo Clinic) page 1226.
- **2.** "It is important (in aplastic anemia) to note that the sites of impaired hemopoiesis may be patchy in distribution and that small regions of extremely active marrow may exist in an otherwise hypocellular bone marrow." Loc. cit., page 1227.
- **3.** "In children one may encounter considerable difficulty in distinguishing idiopathic aplastic anemia from aleukemic lymphatic leukemia." Loc. cit., page 1227.
- **4.** "Leukemia, lymphosarcoma, Hodgkin's disease, lipid-storage diseases, sarcoidosis and certain infections, such as tuberculosis, brucellosis and infectious mononucleosis, may produce changes in the spleen that result in anemia (hemolytic or non-hemolytic), leukopenia or thrombocytopenia. One or a combination of two or three of these sequelae may occur along with splenomegaly and may be regarded as a form of secondary hypersplenism." Loc. cit., page 1232.
- **5.** "A severe leukemoid reaction that produces a peripheral blood picture indistinguishable from that of chronic granulocytic leukemia may accompany a space-occupying lesion of the bone marrow, such as metastatic carcinoma." Loc. cit., page 1234.
- **6.** "To confirm a diagnosis of lymphatic leukemia on the basis of bone-marrow studies, it is necessary to have a generous sample, as involvement may be patchy so that it is possible in such cases to aspirate normal marrow." Loc. cit., page 1234.
- 7. "Paraffin sections are particularly helpful in the diagnosis of Hodgkin's disease and reticulum cell sarcoma in which marrow smears are only rarely of diagnostic value." Loc. cit., page 1238.
- **8.** "When a diagnosis of multiple myeloma is being considered, a study of sternal marrow may yield the most reliable confirmation. A negative

- result does not exclude myeloma, and aspiration of bone marrow should be repeated at various sites." Loc. cit., page 1238.
- **9.** "An increase in plasma cells may be seen in the bone marrow of patients who have granulomatous diseases, rheumatoid arthritis, carcinomatosis, portal cirrhosis, chronic glomerulonephritis, aplastic anemia, malignant lymphomas, collagen diseases and miscellaneous disorders." Loc. cit., page 1240.
- **10.** "In a search for malignant cells it is desirable, if possible, to aspirate the bone marrow from a region that is tender on pressure. Not infrequently one encounters the so-called dry tap, when it is not possible to aspirate more than a drop. This drop never should be discarded but should be smeared on a slide, stained and examined for malignant cells." Loc. cit., page 1243.
- 11. "Unless the tumor cells occur in clumps and groups, one cannot make a definite diagnosis of a metastatic malignant lesion . . . Some investigators are of the opinion that the identification of metastatic cells in films stained by Wright's method is open to question and that a more accurate diagnosis can be made by finding nests of metastatic cells in histologic sections made from particles of aspirated marrow." Loc. cit., page 1244.
- **12.** "Scar tissue is feminine in gender, being perverse at all times: it contracts when it should relax, as in strictures, and stretches when it should contract, as in hernia repairs." Dr. C. Heanley, The Lancet, Jan. 11, 1958, page 95.
- 13. ". . . the relationship of idiopathic steator-rhoea in adults to coeliac disease in children. It appears that the two conditions are likely to be one and the same. The response of the 16 adult patients who did well with a gluten-free diet was exactly the same as that of children with coeliac disease, except that it was slower. Children respond in three to six weeks, while the adults commonly take as many months . . . There is other evidence to suggest that coeliac disease is synonymous with idiopathic steatorrhoea. T.E.H. Thaysen observed that about a half of his adult cases had symptoms going back into childhood." Leading Articles, The British Medical Journal, Jan. 18, 1958, page 149.

MONTHLY CLINICAL PATHOLOGICAL CONFERENCE

EL PASO GENERAL HOSPITAL

JUNE 19, 1958

Frederick P. Bornstein, M.D., Editor — Case No. 1041 Presentation of Case by W. H. Melton, M.D.

History — Dr. Nathan Kleban

A 60-year-old married Latin-American food vendor was hospitalized from January 18-25, 1958. was re-admitted on April 7 and died April 8.

One week before his first admission the patient first experienced unremitting chest pain. This was followed one day later by chills, feverishness and a cough productive of sticky green sputum. Anorexia was accompanied by weight loss of unknown

He was said to have had a cough and "asthma" for about 20 years. There was no other pertinent past or family history.

Physical Examination

Temperature 99.4, pulse 96, respirations 28, blood pressure 128/70. The patient was confused, restless and dry. There were decreased breath sounds, dullness and rales over the right lung fields and a friction rub over the right middle lobe. The posterior pharyngeal wall was injected and partially covered by green exudate.

Hospital Course

Except for rectal temperature of 100 on the second day, no other temperature recording reached 99. The patient was given a Streptomycin-Penicillin preparation parenterally. For several days he was described as being confused.

Appetite improved and he ate well for several days but on each of the last three hospital days he vomited undigested food, green and then colorless liquid. Cough productive of green, mucoid sputum persisted.

He was discharged after one week to return in six weeks to clinic.

Interpretation of a chest film made on April 4 is given below. On April 6 he was seen at home by a physician who found that the patient had pain in the right chest and painful, labored breathing.

He was re-admitted on April 7, somnolent, confused, complaining of pain in his chest and legs. Temperature 99, pulse 80, respirations 20, blood pressure 140/60. Crepitant rales were described over the right lung.

The patient became stuporous, was restless and incontinent of urine. He was given codeine for

pain. Temperature rose to 102. Death came without commotion 24 hours after re-admission.

Laboratory Findings

X-Ray: Chest — 1-20-58 — "Radiographic examination of the chest reveals the lungs to be well ventilated. There is thickened inter-lobar pleura on the right. There is an intensification of the markings in the right middle lobe consistent with an interstitial type pneumonitis. The findings at the left base are also consistent with a tracheobronchitis.

The heart and mediastinal structures appear natural. The trachea occupies its usual position. There is a minimal fibroid opacity at the right apex, the degree of activity cannot be evaluated on a single examination. Conclusions: Findings consistent with pneumonitis, right middle lobe."

4-4-58 — Chest — (Figure 1) — "Standard film of the chest shows a large number of abnormalities involving the ribs. There is an apparent fracture with destruction of the mid-portion of the right first rib.

The ribs generally are all involved, but noticeable lesions are seen in the left seventh rib posteriorly and the ninth and eighth ribs laterally. These lesions are destructive of bone and expand the cortex. In this sense, they do not seem to be typical of multiple myeloma lesions and it is conceivable that they would be non-malignant.

Unless the histologic diagnosis of generalized bone disease is known, considerable information might be provided by bone studies of the ribs and projections of the skull and pelvis for other lesions.

The heart is not significantly enlarged. There appears to be an old adhesion between the left diaphragm and chest wall. Conclusions: Multiple bony lesions are demonstrated. Further studies are recommended since we are not absolutely sure the lesions are malignant."

4-8-58 — Chest — "Re-examination of the chest and comparison with previous study reveals bilateral confluencies consistent with lobar pneumonia, greater on the right than the left. There is an inter-lobar collection on the right. Conclusions: Lobar type pneumonia, right lower lobe."

Blood counts: 1-20-58 — Hb. 15.9 gms., Ht. 44 Vol. %, WBC 14,300, Eosin. 1, Stabs. 1, Segs. 63, Lymph. 33, Monos. 2.

4-8-58 — Hb. 5.4 gms., Ht. 16 vol. %, WBC 5,000, Segs. 68, Lymph. 32.

Urinalysis: 1-20-58 — S.G. 1.014, Albumin 4+, Sugar neg., Reaction acid, Occ. ep. cells, several bacteria.

4-8-58 — S.G. QNS, Albumin 2+, Sugar neg., reaction alkaline, cloudy, few squamous ep. cells, slight smorphous sed., rare uric acid crystals.

Sputum Studies: 1-18-58 — (Two specimens) No acid-fast bacilli seen on smears, cultures negative at six weeks.

1-18-58 — Sputum for Papanicolaou negative for tumor cells.

Miscellaneous: 1-22-58 — P.P.D. No. 1 — Negative.

1-22-58 — Coccidioidin — Negative. Clinical Discussion — Dr. William H. Melton

In summary we have a 60-year-old man who had recurrent pneumonia of undetermined etiology, wide-spread bone lesions, at least in the thoracic cage, also of undetermined etiology, who pursued a rather rapid downhill course to death over a period of a little less than three months.

From the available information it seems that the only disease entity, which might cause a picture like this and which has been fairly well excluded, is tuberculosis.

Positive Side

On the positive side we have three things to work with. One is a recurrent pneumonia, another is the bone lesions in the thoracic cage, and another is the development of a severe anemia in a rather rapidly progressive disease. The only clue as to specific etiology is the nature of the bone lesions.

These have a deceptively characteristic appearance. The only problem is deciding what they are characteristic of. In his first admission, pleural thickening was described and the changes in the right base are about consistent with interstitial pneumonia.

He has some loss of volume as evidenced by depression of the fissure, and he has some accentuation of the markings on the left.

Light Film

This is a very light film and the markings are difficult to evaluate. His vascular markings are a little accentuated and in retrospect, after seeing some of these other films, I think you can go back and see some of the bone lesions.

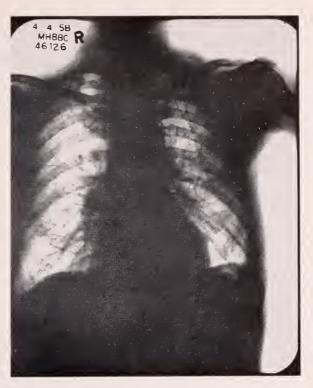


Figure 1. X-ray showing multiple punched out bone lesions.

This is the second film where the bone lesions were noticed. Here is what appears to be a pathologic fracture. There has been some attempt at healing but healing is not complete.

More Lesions

There are some more lesions where the bone is widened and shows a sclerotic reaction about the periphery of the lesion. There is a whole rib which appears to be widened some.

Up here is an area where there is bone destruction and some sclerotic reaction around it and in addition to this there are a number of punched-out areas there with pure destruction without any sclerotic change or any widening of the bone. This is the last film where he shows a pneumonia in his right base.

Destructive Lesion

I think if we want to consider the bone lesions alone without reference to any of the other features we would have to describe this basically as a destructive lesion which produces expansion of the bone and some periosteal reaction.

If you just consider bone lesions that will produce that change without any regard for any other features in this case you have to consider a variety of possibilities such as multiple enchondro-

matosis, Ewing's tumor, fibrous dysplasia and inflammatory and granulomatous processes.

Additional Possibility

Still an additional possibility of a metastatic lesion or myeloma where you have had a pathologic fracture with an attempt at healing. The callus formation produces an appearance of bone expansion.

I think the patient's age and the widespread involvement in the thoracic cage rule a lot of these out.

For example, of the primary bone tumors only Ewing's and reticulum cell sarcoma will metastasize to other bones and you wouldn't expect to see either one of those in a patient of this age group. At any rate, these lesions are not quite characteristic of those two tumors.

Punched Out Areas

Furthermore, you wouldn't expect a fibrous dysplasis or eosinophilic granuloma or an enchondromatosis in this age group. Now, while a number of these punched out areas look a lot like multiple myeloma, this expansion of the bone, this sclerotic reaction is not at all characteristic of either multiple myeloma or metastatic carcinoma.

This leaves an inflammatory process and I think it would be helpful if we could tie the pneumonia in with the bone lesions. Tuberculosis seems fairly well excluded, but fungus infection is not.

Type of Lesion

A fungus infection can produce this type of lesion in the bone when you develop a granulomatous infection which expands the bone and produces periosteal reaction around it. I don't see any evidence of soft tissue involvement.

If we had any history of either draining sinuses or inflammatory soft tissue masses in the chest, it would be helpful as far as a diagnosis of fungus disease is concerned.

Either coccidioidomycosis or actinomycosis or blastomycosis could produce a recurrent pneumonia in association with these bone changes.

Bone Involvement

If you had widespread bone involvement as well as systemic disease it would also produce a profound anemia and, of course, eventually death.

Incidentally, on this last film I think there is some destructive process in the scapula, as well as in the ribs, which shows pretty much the same changes as we see in the ribs.

Of course, in a patient of this age the most common cause of a course such as this is an overwhelming malignant disease; and, if this is the case, I think in view of the widespread bone lesions with no apparent parenchymal metastatic change, multiple myeloma would be the most likely possibility in spite of the fact that these are not characteristic multiple myeloma lesions.

First Choice

I think, taking everything into consideration, that my first choice would be an overwhelming fungus infection and I wouldn't try to differentiate between actino, blasto, or coccidioidomycosis.

Second would be a multiple myeloma even though the lesions are not characteristic, and third, a remote possibility would be the possibility of a multiple enchondromatosis with a malignant degeneration and incidental pneumonia.

Dr. Jack Postlewaite

Dr. Evans asked a question about histoplasmosis. It is true this history is typical of histoplasma capsulatum. We have only one problem. It is not endemic here so the man's history of prior exposure in endemic areas would be important.

The only other things I see that have looked unusual with lung disease are such things as Boeck's sarcoid, where bone lesions are certainly not as multiple as here. A rheumatoid arthritis with bone lesions has really astounded me.

It is amazing to see the punched out areas in that type of disease. In gout you see bone lesions but they are nothing like this.

Malignancy

I think malignancy would be my first impression, probably one of the weird bone diseases, histiocytosis rather than granulomatosis. That would include the eosinophilic granuloma diseases, that would include the metabolic granulomatoses. The probability, however, would be malignant type of bone lesion, the reticulum cell sarcoma. Dr. Melton, did you say something about the reticulum cell sarcoma would be unusual in this age group?

Dr. E. S. Crossett

It seems to me that the problem is either inflammatory or malignant. If it were inflammatory it would be a fungus infection, most likely; and if it were a fungus infection it would be likely to have started in the chest or in the lung.

There are certain things about the X-rays that are against this. One is the lack of hilar adenopathy, with the lesions in the lung. There are no big nodes and I would think that disseminated coccidioidomycosis would have nodes that are visualized. Secondly, I don't see why this couldn't be a carcinoma of the lung. He has a lung lesion and evidence of destructive metastases in the ribs and bones.

Dr. Frederick P. Bornstein

We reported a negative Papanicolaou.

Dr. Melton

I agree with what Dr. Crossett said. However, I disagree on one point, because you practically never see metastatic carcinoma or myeloma that will produce expansion of bone.

He has got some punched out areas in his ribs all right. Unless he has two separate lesions, I don't believe that these represent metastatic carcinoma or myeloma because of the appearance of them.

If you had a fracture, an attempt at healing with callus formation around it, would produce an apparent expansion. Here the expansion is so clearly visualized that I put malignancies down as a second and third possibility.

Clinical Diagnosis: Carcinomatosis.

Dr. Melton's Diagnosis: 1. Overwhelming fungus infection; 2. Multiple myeloma.

Pathological Diagnoses: 1. Multiple myeloma; 2. Nephrosis, myeloma type; 3. Coronary sclerosis; 4. Bronchopneumonia.

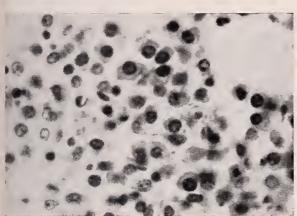


Figure 2. Bone marrow, multiple myeloma.
1-1200 magnification.



Figure 3. Kidney, multiple myeloma nephrosis. Gross photograph.

Pathological Discussion: Dr. Bornstein:

On autopsy we found an elderly emaciated man. In the chest cavity we found a heart with a moderate degree of coronary sclerosis which correlates well with the history of chest pain. In addition, there was a non-specific bronchopneumonia.

The remaining organs were not remarkable with the exception of the kidneys which will be discussed later. The examination of the skeletal system revealed the following: All bones were extremely brittle. Several of the ribs showed fusiform enlargement.

Sections through these areas showed a distended bone marrow cavity which was filled with soft reddish-brown material. The skull showed several transparent areas.

In these areas, the bone was rather soft and contained pale grey, transparent material. All other bones were extremely fragile and soft.

Multiple Myeloma

Microscopic examination of all bones revealed the replacement of the normal bone marrow by large, regular cells with ample cytoplasm. The

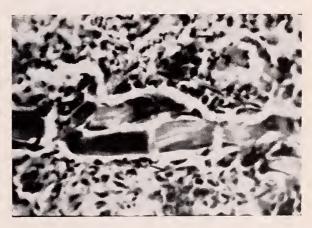


Figure 4. Kidney, multiple myeloma nephrosis with giant cells. 1-400 magnification.

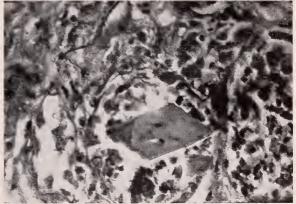


Figure 5. Kidney, multiple myeloma nephrosis crystals. 1-560 magnification.

nuclei were placed eccentrically and had a typical spoke wheel appearance. (Fig. 2) This permits the diagnosis of multiple myeloma.

Severe Nephrosis

As everybody here is aware of, multiple myeloma is frequently complicated by a severe nephrosis which is supposedly due to excretion of Bence-Jones protein. In this particular case the kidneys weighed 400 grams.

On sectioning, both kidneys showed marked widening of the cortex.

The cortex was grayish-white and had a bacon rind-like appearance. (Fig. 3). On microscopic examination, we found the picture of a classical myeloma nephrosis, meaning that the tubules were filled with an eosinophilic substance which had produced a foreign body giant cell reaction around them. (Fig. 4).

Unusual Lesion

In addition, the kidneys showed a rather rare,

unusual lesion, namely, the presence of rhomboid crystals. The nature of these crystals which were first described in 1939, is poorly understood (1, 2). Most observers think that they represent a protein substance.

All we can say about them is that they stain uniformly with acid as well as alkaline dyes and do not dissolve easily and are optically inactive. (Fig. 5).

Summary

In summary, then, we have a patient here who died with the classical findings of myeloma and myeloma nephrosis and a rare morphological change in the kidneys, namely, precipitation of homogeneous crystals.

References

- 1. Allen "The Kidney" Grune and Stratton, 1951, page 280.
- Sikl, H.: A case of diffuse plasmacytosis with deposition of protein crystals in the kidneys, J. Path, & Bact, 61: 149–163, 1950.

Penicillin Anaphylaxis

By W. E. Lockhart, M.D., Alpine, Texas

Anaphylaxis to penicillin is a catastrophe that will occur sooner or later in every doctor's office, in every hospital or wherever the drug is given. Death rate is about 10 percent. More common after intramuscular injection, anaphylaxis also occurs after oral administration. Anaphylaxis will increase in frequency as more patients become sensitized.

The patient is acutely distressed, breathing becomes asthmatic and labored, vomiting and defecation occurs, the skin becomes intensely urticarial and there may be convulsions, loss of consciousness and death.

Negative Answer

Anaphylaxis is NOT prevented by a negative answer to the question "Are you allergic to Penicillin?", for in most instances the patient has taken previous injections with impunity.

A drop of 1:10 penicillin suspension in the conjunctiva or a simple scratch test may be made effectively to determine hypersensitivity.

Penicillin should be prescribed with discrimination, weighing the risk against the circumstances and severity of the infection.

Emergency Treatment

Treatment is emergency, and wherever penicillin is given proper drugs and equipment should be immediately at hand — in every office, in every bag and in every hospital.

Adrenalin 1:1,000 one half cubic centimeter or the same volume as one percent Neosynephrin should be given intramuscularly and repeated if necessary.

Intramuscular cortisone, such as Solu-Cortef 100 mgm. should be given immediately. Phenergan 50 mgm. may be given intramuscularly.

Coming Meetings

Western Association of Railway Surgeons, annual meeting, Seattle, Aug. 7-9, 1958.

Seventh Annual Western Cardiac Conference, Phipps Auditorium, Denver, Aug. 11-15, 1958.

International College of Surgeons, Western Regional meeting, The Riverside Hotel, Reno, Nevada, August 21-23, 1958. For information, write Dr. Leo D. Nannini, 190 Mill St., Reno.

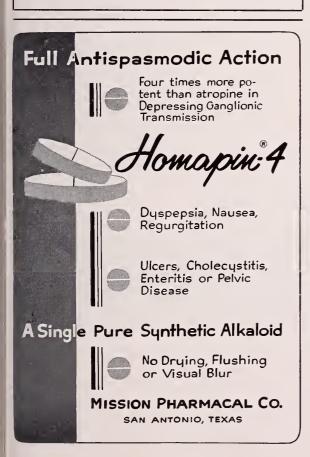
Provincial Physicians, 14th Reunion, Hotel Rio Nazas, Torreon, Coah., Mexico, Aug. 28-30, 1958.

American Fracture Association, annual meeting, Oklahoma City, Oct. 1-3, 1958.

Academy of Psychosomatic Medicine, fifth annual meeting, Park Sheraton Hotel, New York, Oct. 9-11, 1958.

Southwestern Medical Association, annual meeting, Tucson, Oct. 23-25, 1958.

Southwest Obstetrical and Gynecological Society, annual meeting, Paradise Inn, Phoenix, Nov. 14 and 15, 1958.



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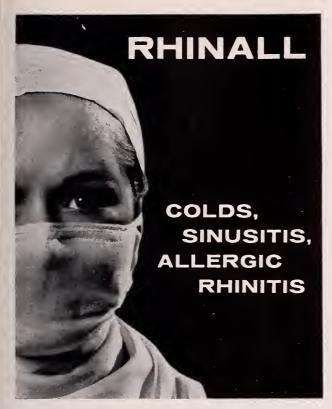
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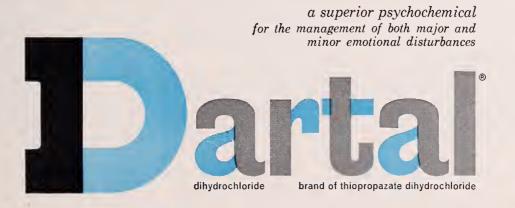
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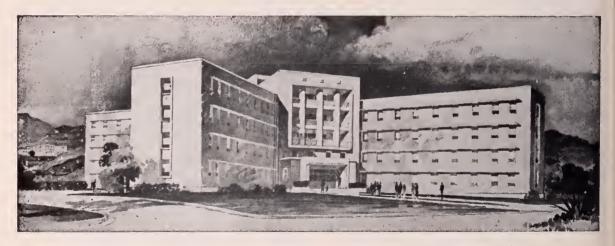
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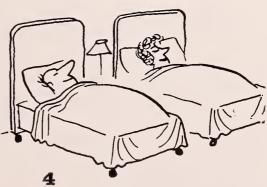
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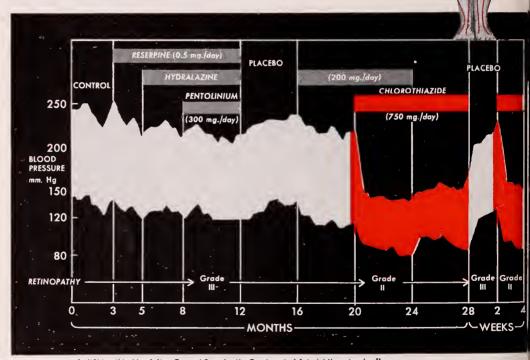
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Wilkins, R. W.: New England J. Med. 257:1026, Nov. 21, 1957.

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Freis, E. D., Wanko, A., Wilson, I. H. and Parrish, A. E.: J.A.M.A. 166:137, Jan. 11, 1958.

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In "Chlorothiazide: A New Type of Drug for the Treatment of Arterial Hypertension,"

Hollander, W. and Wilkins, R. W.: Boston Med. Quart. 8: 1, September, 1

MERCK SHARP & DOHME Division of MERCK & CO., INC., Philadelphia 1, Pa.

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- ADJUST DOSAGE OF OTHER AGENTS. The dosage of other antihypertensive medication (reserpine, veratrum, hydralazine, etc.) is adjusted as indicated by patient response. If the patient is established on a ganglionic blocking agent (e.g., 'INVERSINE') this should be continued, but the total daily dose should be immediately reduced by as much as 25 to 50 per cent. This will reduce the serious side effects often observed with ganglionic blockade.
- ADJUST DOSAGE OF ALL MEDICATION. The patient must be frequently observed and careful adjustment of all agents should be made to determine optimal maintenance dosage.

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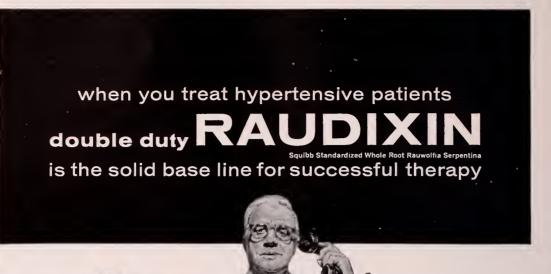
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*Finnerty, F. A. Jr.: New York State J. Med. 57:2957 (Sept. 15) 1957.

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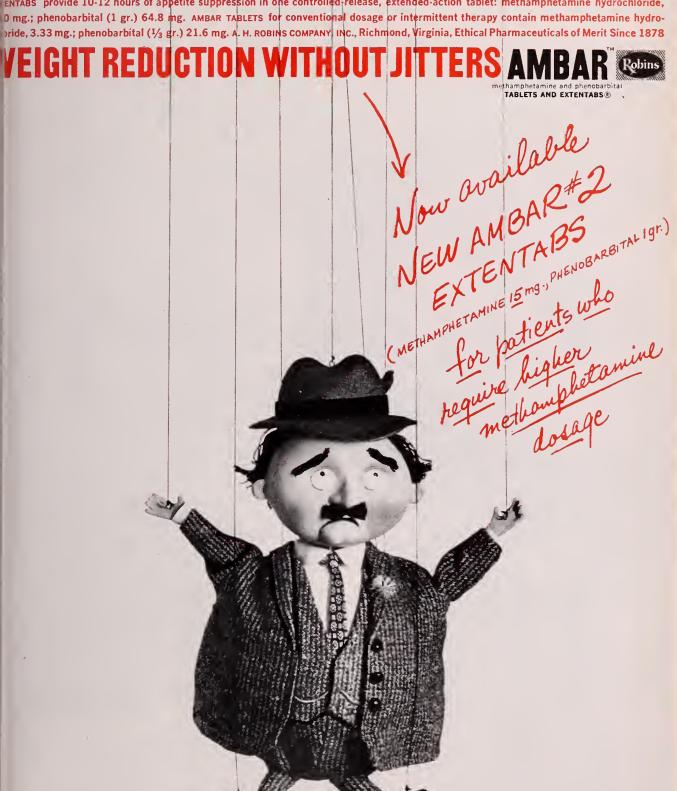


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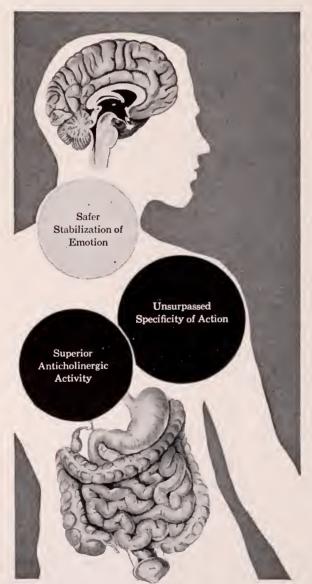


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References: 1. Welch, H.; Wright, W. W., and Staffa, A. W.: Antihiotic Med. & Clin. Therapy 5:52 (Jan.) 1958. 2. Carlozzi, M.: thid. 5:146 (Feh.) 1958. 3. Shalowitz, M.: Clin. Rev. 1:25 (April) 1958. 4. Stone, M. L.; Bamford, J., and Bradley, W.: Antihiotic Med. & Clin. Therapy 5:322 (May) 1958. 5. Cornhleet, T.; Chesrow, E., and Barsky, S.: Ihid. 5:328 (May) 1958. 6. West, R., and Clarke, D. H.: J. Clin. Invest. 17:173 (March) 1938. 7. Jimenez-Diaz, C.; Aguirre, M., and Arjona, E.: Bull. Inst. M. Res. Madrid 6:137 (Oct.-Dec.) 1953. 8. Lerman, S.; Pogell, B. M., and Lieh, W.: A.M.A. Arch. Ophth. 57:354 (March) 1957.



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SEPTEMBER, 1958 497



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Dr. Ira A. Budwig (center) and Dr. Manuel D. Hornedo, members of the El Paso County Medical Milk Commission, with Mr. Harold Tillman (left), Chief Sanitary Engineer, inspect equipment at Price's Certified Milk Unit.

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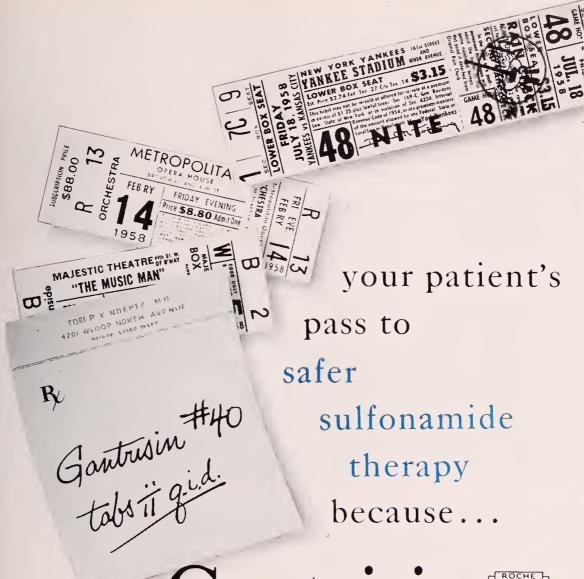
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CUTTER LABORATORIES
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Southwestern MEDICINE

VOL. XXXIX

SEPTEMBER, 1958

No. 9



THE PRESIDENT'S COLUMN

Salute to Southwest Blood Banks, Inc.

By Louis G. Jekel, M. D., Phoenix

Southwest Blood Banks, Inc. will soon be 15 years old. It is fitting and proper that the Southwestern Medical Association should note that fact and offer congratulations.



Dr. Louis G. Jekel

In 1943 the Maricopa County (Arizona) Medical Society voted to sponsor a blood bank to satisfy a need for blood and plasma in adequate amounts on short notice for civilian and military hospitals.

Accordingly, on Oct. 4, 1943, the Salt River Valley Blood Bank was

opened for business. It was operated under the auspices and under the control of the Medical Society.

Funds had been obtained from private individuals, business concerns, the United War Fund, Maricopa County, and other sources. Construction workers had donated much labor for the building project.

Voluntary Workers

Voluntary workers, nearly all women, included in their duties: registering donors, operating the switchboard, typing, bookkeeping, acting as hostesses and nurse's aides, transporting the blood, and numerous other activities. It was decidedly a community effort.

From this small beginning (it did not seem small to us at the time) has come a remarkable

development. Soon sub-depots were located in Mesa, Yuma, Prescott, and Fort Whipple Hospital.

Output had grown from 200 pints a month in the first year to 600 pints a month in the fifth year.

Many Requests

As time went on the Salt River Valley Blood Bank received requests from other communities in other states for help in setting up blood banks. The Medical Societies in El Paso and Albuquerque, and later in other areas, requested that blood banks be established.

The comunities of Brawley and Las Vegas, Nevada, requested that depots be set up. By 1951 the organization had grown to the point where it was incorporated and given a new region-embracing name: The Southwest Blood Banks, Inc.

Today this fine organization operates blood banks in 12 cities located in eight states. The land area served is estimated to cover one-sixth of the entire continental United States extending from Mississippi to California and from Wyoming to the Mexican border

Serves Five Million

Five million people in this area are served by this system of blood banks.

Time and space do not permit a full length story. Such will come out next month in the form of a history of the Blood Banks.

For now we merely wish, on its 15th anniversary, to salute and congratulate the Southwest Blood Banks, Inc.

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Work-Play Plan Features Southwestern Meeting In Tucson, Oct. 23-25

Plans are complete for the annual meeting of the Southwestern Medical Association in Tucson, Arizona, October 23, 24 and 25, with headquarters in the Pioneer Hotel.

Dr. Louis G. Jekel of Phoenix is president and Dr. H. D. Cogswell, a member of the Southwestern executive committee, is general program chairman for the meeting.

Dr. Blair W. Saylor, Tucson, publicity chairman for the meeting has announced that scientific sessions will be confined to morning and noon meetings with afternoons left open for sports, relaxation and sightseeing in the city famous for its sunshine. Reports Dr. Saylor:

"The program will include small round-table groups for doctors to become acquainted with each other and the speakers. There will be a greater opportunity than in the past to ask personal medical questions, so bring your problems from your own practice.

"The scientific program will be arranged so that you can concentrate efforts in the desired field of interest, making available more leisure time. The weather will be ideal for outside activities. And the women will have a program which is interesting and full of fun!"

Speakers

Speakers will be:

Dr. John L. Brewer, Professor of Gynecology and Obstetrics at Northwestern University; Dr. George C. Andrews, Consulting Dermatologist to Columbia-Presbyterian Medical Center in New York; Dr. John W. Henderson, Associate Professor of Ophthalmology at the Mayo Foundation in Rochester, Minnesota; Dr. Robert M. Zollinger, Professor and Chairman of the Department of Surgery at Ohio State University; Dr. Reginald H. Smart, Clinical Professor of Medicine at the University of Southern California; Dr. John R. Schenken, Professor of Pathology at the University

sity of Nebraska; and Dr. Robert H. Lennox, Associate Professor of Pediatrics at Tulane University.

Dr. Brewer is one of the editors of the American Journal of Obstetrics and Gynecology. Dr. Henderson also serves as Consultant in Ophthalmology at the Mayo Clinic.

Dr. Zollinger is first Vice-President of the American College of Surgeons; Editor of the American Journal of Surgery; a member of the Editorial Board of both "Gastroenterology" and "The American Surgeon"; Chairman of the Graduate Training Committee of the American College of Surgeons; Chairman of the Special Advisory Group of the Veterans Administration; and Chairman of the Section on Surgery, General and Abdominal, of the American Medical Association.

Dr. Schenken is Past President of both the American Society of Clinical Pathologists and the International Congress of Clinical Pathology; is a Trustee of the American Board of Pathology; and a Director of the American Association of Blood Banks. He is a contributing author to both Anderson's textbook on Pathology and Pullen's textbook on "Communicable Diseases".

Dr. Lennox has written "Pediatrics — The Tropics and Sub-Tropics", to be published, is author of "Practical Procedures," a chapter in a textbook by Drs. Jelliffe and Trowall, and several scientific papers in the field of Pediatrics.

Social Activities

Social and entertainment features of the program include a cocktail party on the evening of October 24, given by Southwestern Surgical Supply, a banquet October 24 for which dress will be optional, and a football game between the University of Arizona and the University of Idaho on the night of October 25.



Unusual view of Mission San Xavier del Bac near Tucson, Arizona, site of the annual South-western Medical Association meeting, Oct. 23-25, 1958. The mission is the oldest of the early Spanish missions still in daily use as a church. (Photo Courtesy Tucson Chamber of Commerce)

SEPTEMBER, 1958

Program of the Southwestern M

Scientific Program
Thursday — October 23rd
9:00 A.M.-2:00 P. M.: Registration

Morning Session

Everett W. Czerny, M.D., Tucson, Presiding

9:15 Invocation

Rev. Jerry Wallace

9:20 Welcome
F. J. Lesemann, M.D., Tucson, President, Pima County Medical Society

9:30 President's Address Louis G. Jekel, M.D., Phoenix, President, Southwestern Medical Association

10:09 Visit the Exhibits

10:15 "The Diagnosis and Treatment of Common Dermatoses of the Hands", George C. Andrews, M.D., Consulting Dermatologist, Columbia Presbyterian Medical Center, New York City.

19:45 "The Cystic Ovary — Surgical or Non-Surgical?", John R. Schenken, M.D., Professor of Pathology, University of Nebraska.

11:15 "Pelvic Pain"

John I. Brewer, M.D., Professor of
Obstetrics and Gynecology, Northwestern University.

11:45 "The Surgical Importance of Pancreatitis" Robert M. Zollinger, M.D., Professor of Surgery, Ohio State University.

Round Table Luncheon Meetings—with discussion of morning papers.

1. Surgery; Robert M. Zollinger, M.D.

Moderator: H. D. Cogswell, M.D., Tucson, General Chairman for the Meeting

2. Dermatology: George C. Andrews, M.D.
Moderators: Kenneth C. Baker, M.D.,
Tucson; Louis G. Jekel, M.D.,
Phoenix

3. Gynecology and Pathology; John I. Brewer, M.D.; John R. Schenken, M.D. Moderators: George Fraser, M.D., Tucson; Louis Hirsch, M.D., Tucson

Afternoon Session

2:15 Business Meeting Golf and Films

Evening Chuckwagon Dinner — Guest Ranch

Friday—October 24th 9:00 A.M. - 2:00 P.M.: Registration Morning Session

SEMINAR IN PEDIATRICS

J. H. Demlow, M.D., Tucson, Presiding
9:20 Pathology
"Laboratory Diagnosis of Hemolytic Disease of the Newborn and the Selection of the Donor for an Exchange Transfusion in Hemolytic Disease,"

John R. Schenken, M. D.
9:40 Dermatology
"Treatment of Acne",
George C. Andrews, M.D.

10:00 Gynecology
"Ovarian Lesions During Childhood".









Dr. Henderson

ciation Annual Meeting

10:25 Ophthalmology
"Hemangiomas of Infancy: Eyelids and
Orbit",
John W. Henderson, M.D., Mayo

Clinic.

10:45 Visit the Exhibits

10:55 Surgery
"Surgery of the Spleen",
Robert M. Zollinger, M.D.

11:20 Internal Medicine
Subject to be announced.
Reginald H. Smart, M.D., Clinical
Professor of Medicine, University of
Southern California.

11:45 Pediatrics
Subject to be announced.

Robert H. Lennox, M.D., Associate Professor of Pediatrics, Tulane University.

Round Table Luncheon Meetings—with discussion of morning papers.

1. Pediatrics; Robert H. Lennox, M.D.
Moderator: Hugh C. Thompson, M.D.,
Tucson.

Medicine; Reginald H. Smart, M.D.
 Moderator: Clarence L. Robbins, M.D.,
 Tucson.

3. Ophthalmology; John W. Henderson, M.D. Moderator: Sherwood P. Burr, M.D., Tucson.

The ophthalmologists will have a specialty group meeting Friday morning.

Afternoon Session

Medical Movies and Golf

Evening

Cocktail Party, courtesy Southwestern Surgical Supply Company

President's Dinner

Saturday, October 25th Morning Session

Leo J. Kent, M.D., Tucson, Presiding
9:15 "Basic Issues in American Education",
Richard C. Harvill, President, University of Arizona.

9:45 "Thyroid Physiology and Brain Function
—Alcoholism and Hangovers",
Henry J. Koch, M.D., Tucson.

10:15 "Subdural Hematomas in the Elderly",
Peter Stuteville, M.D., Neurosurgeon,
University of Colorado.

10:45 Visit the Exhibits.

11:00 Internal Medicine

"Recognition and Treatment of Respiratory Acidosis",

Reginal H. Smart, M.D.

11:30 Ophthalmology
"The Cataract Patient in General Practice",
John W. Henderson, M.D.

12:00 Pediatrics

"Pulmonary Tuberculosis in Childhood", Robert H. Lennox, M.D.

No Scheduled Luncheon Meeting.

The Southwestern Dermatological Society will have a specialty group meeting.

Afternoon Golf

Evening

Football Game: University of Arizona versus University of Idaho.







Dr. Schenken

Dr. Smart

Dr. Zollinger

APHORISMS and MEMORABILIA

Miscellaneous Truths and Concepts

(Continued)

- 14. "... tropical sprue appears to be a separate disease... Patients with tropical sprue eventually recover completely when removed to a temperate climate. They are not sensitive to gluten. Lastly, it has been shown that repeated courses of antibiotics bring about a cure of tropical sprue, though they are ineffective in idiopathic steator-rhoea." Loc. cit., page 150.
- 15. "I am loathe to use anticoagulants in any polycythemia vera patient with a hematocrit over 50. In untreated cases with high counts and thromboses, I prefer small phlebotomies followed by a myelosuppressive agent." L. R. Wasserman. Quoted by John H. Lawrence, Modern Medical Monographs, 1955, page 63.
- **16.** "I refuse to permit any elective surgery in my cases; treatment for control of the polycythemia (vera) must precede elective surgery, and emergency surgery is always preceded by venesections, if possible." L. R. Wasserman, Loc. cit., page 63.
- 17. "(Hiatus Hernia) is essentially a disorder of middle or later life, the majority of patients seeking advice during the 5th to 7th decade of life." V. Edmunds, Quarterly Journal Med. October 1957, page 445-465.
- 18. "The view that the majority of hiatus hernias are symptomless was not supported. In

- 97 per cent of the patients the hernia was the main source of dyspepsia." Loc. cit.
- 19. "The essentials of the teenager's situation are well understood—it is a phase of emergence from immaturity to maturity, from dependence to independence, from an asexual existence to a full sexual life. A whole series of conflicts may arise because . . . intellectual development lags behind physical development and social maturity takes still longer to achieve." Dr. D. Hubble, Brit. Med. Journal, Jan. 25, 1958, page 191.
- **20.** "It must be remembered that the L.E. cell is not specifically diagnostic since it is quite frequently observed after steroid therapy of any disorder." Drs. Spurr, Curd & Moyer, GP, May 1, 1957, page 123.
- 21. "One of the oldest puzzles of politics is who is to regulate the regulators. But an equally baffling problem, which has never received the attention it deserves, is who is to make wise those who are required to have wisdom." The Great Crash, John K. Galbraith, Houghton, Mifflin, 1957.
- **22.** "Our political life favors the extremes of speech; the man who is gifted in the arts of abuse is bound to be a notable, if not always a great figure. In business, things are different. Here we are surprisingly gentle and forbearing." Loc. cit., John K. Galbraith.

Southwest Ob & Gyn Society Meeting in November

Dr. Charles Van Epps of Phoenix, president of the Southwest Obstetrical and Gynecological Society, has announced that the 1958 meeting of the society will be held in Phoenix November 14 and 15.

Headquarters for the meeting will be at the Paradise Inn.

CURRENT THERAPY

Dietary Prevention and Treatment of Heart Disease: A Book Review*

By Jack A. Bernard, M. D., F. A. C. P., El Paso

Dietary Prevention and Treatment of Heart Disease, John W. Gofman, M.D., Alex V. Nichols, Ph.D., and E. Virginia Dobbin, Senior Dietician. \$3.95 pp 256, G. P. Putnam's Sons, 210 Madison Ave., New York 16, May 19, 1958.

This text is a must for those interested in lipoproteins and the dietary prevention and treatment of heart disease. It is written both for the lay person and the physician. It sets forth the concepts involved and presents a practical specific approach to the problem in a careful meticulous manner.

The authors realize and admit "many facets of the heart disease problem are yet to be elucidated," yet it is their purpose "to take advantage of what we know now."

Individual Approach Stressed

The authors first discuss the lipoproteins, the saturated and unsaturated fats, and the role that carbohydrates and calories play in this difficult problem. There is an interesting chapter on the use of vegetable oils in the diet.

Then a practical approach — the "Recommended Diet" — is proposed and it is pointed out in detail how to alter one's own diet. Thus an individual approach is emphasized, depending upon a patient's own serum lipoprotein status. For example, a low fat diet is not indicated for all, as there are some persons who require a low carbohydrate diet, depending upon their lipoprotein findings.

The individual is instructed as to how to evaluate his own diet and how to alter it to one that may be more effective in reducing his risk of coronary artery disease (the "Recommended Diet"). By substitutions, this diet fulfills all the known nutritional requirements and is still highly palatable.

According to the authors, vegetable oils may not necessarily be beneficial, but rather there may be a "noxious factor" in animal fats or an individual may be unusually sensitive to carbohydrate substances in his diet.

*It is reported that several Southwestern book stores and book departments are in process of obtaining this book for local sale.

Therefore the substitution of **certain** vegetable oils (not all, and this is discussed) is neither harmful nor beneficial but does remove the possible noxious factors and yet restores the diet to its original satiety and palatability value.

Study Required

Thus it is evident that the book cannot be casually read and digested. It requires careful study. In working out one's own diet, the lay person will probably need help but the procedure is very clearly discussed and may be easily worked out with a little effort.

All Foods Can Be Eaten

It should be good news to all, particularly coronary patients and others who are coronary candidates, that the authors point out that "there cannot be any list of specific food items which can be called harmful or which should be specifically avoided." "All foods can be eaten." "What is important is, how much of the various foods can be eaten in keeping with research findings."

Index Would Be Helpful

In the final chapters of the book, many fine low caloric palatable recipes are included. Also the various sources of non-hydrogenated peanut butter, low caloric maple syrup, chili sauce, butter seasonings and other hard-to-get items are listed.

Thus the book provides a very fine reference for useful palatable recipes. In this regard, an index would have been welcomed.

It is realized that the etiology and prevention of coronary artery disease is highly controversial, and such concepts are rapidly changing, but this book should be welcome to all coronary sufferers, as well as those who have a family history of coronary artery disease, those whose lipoproteins have been found to be abnormal, and finally to any individual who wants to take a practical palatable approach to the dietary preventive measures outlined, as based on the latest research and long experience of the authors.

The book is well written, the concepts logically and well presented, and it is a very practical, palatable, current logical approach to the "Dietary Prevention and Treatment of Heart Disease."

ORTHOPAEDIC SURGERY NOTES

Report on the Texas Orthopaedic Meeting

By ZIGMUND W. KOSICKI, M. D., El Paso

First of all I want to say that I enjoyed the one-day meeting very much. It was held in conjunction with the annual meeting of the Texas State Medical Association.

Dr. Paul Harrington of Houston discussed spine fixation and paralytic scoliosis, and presented a ten-year study he had performed. He used an internal metallic strut and presented slides and pictures illustrating the 150 operative procedures in which this had been utilized over a period of ten years.

There was no evidence of pulmonary or electrocardiographic changes, no serious complications. Average hospital stay was 10 days. Slide studies of scoliosis in mice showed definite changes in the facets, with a loss of normal tubular arrangement of the enchondral bone layer with definite evidence of trabecular thinning in these involved facets.

Study of 90 Cases

Dr. Frank F. Parrish and Dr. John G. Andrew of Houston presented a paper concerning "Complications and Sequelae of Long Bone Osteotomies of the Lower Extremity". This was a study of 90 cases in a nine-year follow-up at the Shrine Clinic and the Herman Hospital.

They brought out the fact that osteotomies of the femoral neck are difficult and are prone to be associated with complications.

Subtrochanteric osteotomies are much more likely to be successful. Good results were obtained in 77 per cent of the osteotomies.

Dr. Charles Clayton of Fort Worth presented a talk about fractures of the distal end of the radius. He emphasized that this is a region in which results are not always good, and he utilizes a special apparatus to maintain good reduction over a long period of time.

History Important

Dr. Allen F. Voshell of Baltimore, Maryland presented "The Clinical Features Obtained From Anatomical Studies of the Knee".

He emphasized the importance of a full history to picture the mechanical involvement of the extremity in the injury. The stability of the knee is not dependent on the menisci, but on the ligaments

The menisci act as shock absorbers and also help distribute the synovial fluid. The ligaments were fully discussed.

The meeting was adjourned for a business meeting and a luncheon. Then as a guest I was invited to the afternoon meeting which took place at the Shrine Hospital at the Medical Center at two o'clock.

Excellent Movie

Dr. Louis J. Levy of Fort Worth gave a talk and illustrated it with an excellent movie entitled "Transplant of the Pectoralis Major Muscle for Deltoid Paralysis". A transposition of this muscle was first mentioned by Bost in 1954. A very excellent result was secured.

Dr. Isaac McReynolds of Houston discussed gluteus maximus tendinitis. This can cause a sciatic type of pain. X-rays show evidence of calcification similar to that of calcification of the shoulder.

Blood count and uric acid level should be determined. Treatment; excision of calcified deposits. If no calcification is present in the area, Hydrocortone injections can be tried.

Dr. Louis W. Breck of El Paso presented an end result study in the Fred-Thompson hip prosthesis. This was well prepared and well presented. The movie included the case of a 107 year-old lady with excellent results.

Massage-Like Effect

Dr. Ruth Jackson of Dallas gave a talk on "Cineradiography of the Cervical Spine During Intermittent Traction".

Motorized intermittent traction using 35 pounds gave distraction of the sixth and seventh vertebrae; with 10 pounds there was little change in the interspace. There is a massage-like effect of the traction and if used early it prevents adhesions.

Dr. Robert Murray of Temple, Texas discussed infections of the spine. These can occur

with any organism: hematogenous. lymphatic, and direct spread. Acute, subacute, or chronic may be present and the hip joint syndrome, abdominal syndrome or meningeal type may be manifest.

Post-operative disc infection gives pain, normal sed-rate, normal blood count. Treatment is application of short bilateral hip spica cast. Later on there is evidence of atrophy and thinning of the disc margin by radiological examination.

Difficult Procedure

Dr. Joe Woodward of Waco presented a muscle origin release operation in the treatment of Sprengel's deformity. A really beautiful movie was presented on a difficult procedure with an excellent result.

I attended the Orientation Program, much of which was quite valuable. Principles of Office Management, Legal Aspects of Medical Practice, Careful Explanation of Charges to Patient and Patient Orientation were stressed as being good public relations.

It was a very interesting meeting and much enjoyed.

Obstetrics Courses Offered in New York in October

The Woman's Hospital in New York City is offering two courses in obstetrics, limited to general practitioners. Each course is approved for 30 hours Category I credit by the American Academy of General Practice.

The courses are entitled "Ante-partum Care" and "The Conduct of Labor and Delivery". They will be given from October 16th to 30th, 1958.

These are full time courses running for a week each. Students will be expected to work in the clinics, and in the second course they will be assigned to patients in labor whom they will assist at delivery. Either one or both courses may be elected.

Physicians interested in this Post-Graduate instruction will please address Mr. Carl P. Wright, Jr., Woman's Hospital, 141 West 109th Street, New York 25, New York; and an application blank and prospectus will be forwarded.



OFFICERS OF NEW MEXICO AAGP—Officers of the New Mexico Chapter of the American Academy of General Practice, shown at the Ruidoso Summer Clinics meeting in Ruidoso, New Mexico, July 21-24, are (left to right) Dr. J. A. Rivas, Belen, past president; Dr. W. H. Peacock, Farmington, new president; Dr. Steve Marshall, Roswell, vice president; Dr. Leland Evans, Las Cruces, delegate to the American Academy of General Practice and program chairman for the Ruidoso meeting; and Dr. F. R. Brown, Roswell, secretary-treasurer. Dr. C. Pardue Bunch, Artesia, the new president-elect, was not in the picture. The Ruidoso Summer Clinics meeting, slated to become a popular annual event, was sponsored by the New Mexico Chapter of the American Academy of General Practice and featured eight speakers from the University of Colorado School of Medicine and Southwestern Medical School. Ruidoso is located 135 miles north of El Paso, Texas, at 7000 feet in the cool mountain pines.

SEPTEMBER, 1958 509

ORIGINAL ARTICLES

Herniated Bladder Diverticulum

A Case Report*
By J. Leighton Green, M.D., F.A.C.S., El Paso

*(Presented at Staff Meeting, Southwestern Gen. Hospital)

Two unusual features of this case seem to make it worth reporting:

- 1) The type of hernia, and
- 2) The complication of shock following herniation.

F. H., male, age 45, was brought to Southwestern General Hospital on June 28, 1957, acutely ill. It was difficult to obtain a history since he was irrational. He had been living alone. On June 24th, four days before admission, he had diarrhea and vomiting.

For several days he had experienced difficulty in urinating. He worked on June 25, 26, and 27th, but nausea and vomiting persisted, and on the day of admission he had chills. His employer found him at home in bed, recognized his condition as serious, and brought him to the hospital.

Latin-American

Examination found a Latin-American man who might well be called "Mr. Five by Five." His height was five feet, five inches, his weight 235 pounds.

Profuse diaphoresis was evident, and he was irrational, responding poorly to questioning. Temperature was 104.2 degrees, respirations 52 per minute, pulse rate 150.

He presented the picture of shock, with blood pressure of 62/50. The abdomen was large and fat, with moderate distention. No tenderness or rigidity could be elicited, and auscultation revealed normal borborygmi.

In the right side of the scrotum and extending up to the inguinal ring was a mass the size of two fists. The mass was irreducible, but was not tender. It did not transmit light.

Uncooperative

The patient was uncooperative, resisting attempts to catheterize him. He staggered to the bathroom, with the help of the orderly, passed a small watery defecation tinged with blood, but was able to void only a few drops.

He returned to bed and sank into a coma. A catheter was passed, but no urine obtained.

To confuse the picture further, one pupil was larger than the other, both reacting to light.

A scout film of the abdomen showed only a small amount of gas in the small bowel, but no distended loops. The blood picture was that of concentration, with Hgb of 15.3 gm., red blood count of 4,890,000, with a white count of 3,100 (the writer believes the white count was in error).

The differential reported was 77 percent polymorphonuclear leukocytes, with 23 percent lymphocytes. Urinalysis: Sp. gr. 1.024, albumin 3-plus, a few RBC. NPN was 37 mg. percent, blood sugar 174 mg. percent. $\rm CO_2$ combining power was not determined on the day of admission, but on July 1st was 60.8 vol. percent.

Patient Revived

Intravenous saline and glucose revived the patient so that he would respond to questions. He complained of thirst. He said that the scrotal mass was no larger than usual and was not painful.

To elevate his blood pressure, Levophed was administered intravenously, but for three days this struggle continued. As soon as Levophed was discontinued, the blood pressure would fall to 60 or 70 systolic.

Hydrocortisone and then cortisone acetate were given. A duodenal tube was inserted and suction employed to relieve distention. When the tube was clamped, the patient vomited.

On the evening of admission neither the orderly nor the writer could catheterize him, and a urologist (Dr. A. W. Multhauf) had much difficulty in passing a filiform. Some bloody urine drained from the bladder.

Examined by Internists

Two internists examined the man (Drs. Golding and Davidson). An EKG made by Dr. Ralph Homan was normal.

The most obvious diagnosis seemed to be a strangulated inguinal hernia, but it seemed unwise to operate while the patient was in shock.

On June 29th, the day after admission, a white blood count of 25,500 was reported, with Hgb still up to 14.3 Gm. and red blood count of 4,970,000. The neutrophils showed toxic granulation.

Urine was bloody, as expected, but it also showed many fine granular and a few coarse granular casts.

On July 1st the blood count was: Hgb 12.7 gm.. RBC 3.36 mill., WBC 18600, with 94 segmented neutrophils, only 4 lymphocytes. X-ray of the abdomen, repeated on July 1st, did not help in diagnosis.

Fails to Improve

Since the patient's condition failed to improve satisfactorily, we felt forced to operate. It is of interest that on the day of operation a consultant wrote as his opinion that the condition was critical.

Operation was performed on July 1st. An oblique incision was made in the right lower quadrant of the abdomen, the fascia of the external oblique was incised down thru the external inguinal ring, and the mass was drawn up from the scrotum.

Dissection found an empty hernia sac, 8 X 20 cm. in size. Adherent to this peritoneal sac and extending down into the scrotum was a large bladder diverticulum, containing urine.

It measured about $5\,\mathrm{X}\,12$ cm. It was dissected free and excised, the bladder sutured with #00 chromic catgut, reinforced by interrupted #00 silk sutures.

The bladder was returned to the peritoneal cavity, draining it by the inguinal canal being thought impractical. The peritoneal sac was excised and a routine herniorrhaphy done, transplanting the spermatic cord outside the external oblique fascia.

Some Uncertainty

Some uncertainty remained as to whether a loop of intestine might have been damaged by incarceration and then dropped back into the peritoneal cavity.

Another incision was therefore made from umbilicus to pubis, and the peritoneal cavity explored. No abnormal intestine was found.

The peritoneum was closed. A suprapubic cystostomy was done, a Foley catheter inserted for suprapublic drainage.

An attendant removed the filiform catheter from the penis and had no difficulty in inserting a #16 Foley.

The midline wound was closed. 1000 cc. of blood was given during the operation. The pathologist reported that the excised diverticulum contained all layers of the normal bladder, with fibrous thickening.

Post-operatively, the patient was restless and irrational. However, by the next day his blood pressure, respirations, and pulse were stabilized. In the first 24 hours p.o. it required a fair amount of oxygen to maintain normal color.

Repeated intravenous fluid administration became a problem, because he was so fat. Temperature rose to 104 on the day after operation, then receded.

A low-grade fever persisted (to 100 or 100.5 daily). Twenty-four hours after operation, the duodenal tube was removed, the patient sat up in a chair, and he started to eat.

On the fifth p.o. day a small hemorrhage about the suprapubic catheter caused some concern, following coughing. On the 9th day, some abdominal pain and vomiting necessitated reinsertion of the duodenal tube, but these signs quickly subsided and convalescence was then uneventful.

The suprapubic catheter was removed on the 12th p.o. day, the urethral catheter 3 days later. On July 21, 20 days after operation, the patient was discharged.

Antibiotics Used

Some pyuria persisted for a while, but cleared up under office treatment with Gantrisin and Chloromycetin.

It is needless to add that antibiotics had been used freely during hospital treatment. Last seen on August 21, Pancho said he felt fine, and was doing light work.

He urinates 3 or 4 times during the day and an equal number of times at night. He has no complaint. His weight August 21 was 200, and he asked for a reducing diet.

COMMENT:

Dehydration and anuria probably accounted for some of the patient's symptoms on admission. Traction on the urethra by the diverticulum no doubt blocked outflow of urine and insertion of a catheter.

It is difficult to account for the persistent shock, unrelieved by abundant parenteral fluids, but relieved when the diverticulum was resected.

Diverticula of the bladder are not rare. Estimates of the incidence run from 0.4 percent to 3 percent in males. However, herniation of a bladder diverticulum into the scrotum along with an indirect inguinal hernia sac is apparently quite rare.

Koontz reported two cases of sliding hernia of bladder diverticula. In each of his cases, the diverticulum was quite thin, consisting only of bladder mucosa.

In our patient the sac was thick-walled, containing all layers of the bladder proper. 1501 Arizona St., Suite 3A.

BIBLIOGRAPHY

Koontz, Amos R.: Sliding Hernia of Diverticulum of Bladder, Archiv. Surg., Vol. 70, No. 3, March 1955, 436.

Intramuscular Digitoxin in Heart Failure

By Endel Kask, M.D., Resident and Chief Resident, Medical Service Metropolitan Hospital, New York City, 1955-1957.

Although digitoxin has been and is commercially available for intramuscular use there has been very little mention of such use in textbooks or other medical literature. Years ago, a paper in American Heart Journal¹ indicated the effectiveness and painlessness of intramuscular digitoxin when used in the new, essentially non-ethyl alcoholic solvent.

However, in spite of this, intramuscular digitoxin appears to be shunned by medical practitioners, including experienced and authoritative specialists in the field who state that intramuscular digitoxin, even in the new solvent, not only is unreliable as a therapeutic agent but also causes significant local pain and muscle necrosis.²

Geriatric Character

In the increasing number of patients of geriatric character with mental unreliability and forget-fulness it would seem important to use a digitoxin preparation that could be given conveniently and without significant side effects by parenteral route and not involving the physician's participation at the injections.

This applies also to the relatively frequent other mentally defective patients admitted particularly to community hospitals. Many other patients are initially so severely ill that a parenteral, convenient preparation for initial digitalization would seem the best solution.

Check Effectiveness

Even though a great majority of such patients subsequently can be maintained on oral treatment a less reliable minority would require parenteral maintenance. Therefore, it is the purpose of this paper to check for the effectiveness of intramuscular digitoxin and its charged side effects.

The author, working 1955-1957 at Metropolitan Hospital, a city hospital of New York City and among the foremost admitting considerable numbers of patients of the type described above, many of them in advanced heart failure, had the opportunity to use intramuscular digitoxin in the essentially non-ethyl alcoholic solvent in more than 50 patients.

Method

All patients to whom such a digitoxin preparation was administered were at least initially in heart failure, as determined by clinical examination and/or determination of venous pressure and circulation time. The schedule of administration was made to simulate a method that could be used routinely in practice, without more work than would be required in any basic care of cardiac failure.

Because of absence of facilities a different or more detailed approach would not even have been possible in the case of the patients reported on in this paper. In most cases the initial digitalization was accomplished or attempted by giving two doses of 0.6 mg. digitoxin intramuscularly, at most 18, but usually less than 12, hours apart, and in about a third of the patients only six hours apart.

Thereafter the drug was continued with 0.2 mg. intramuscularly every day until the patient was evidently out of the disabling failure and the ventricular rate had decreased to less than 90 per minute. (By mistake, this schedule was not followed in one case. See below).

Dosage Decreased

Thereafter the dosage was decreased to 0.1 mg. intramuscularly daily and continued for variable lengths of time, depending on the length of stay in the hospital etc. In some cases it was continued intramuscularly for several weeks.

In the few (6) patients who had been taking digitalis or digitoxin by mouth previously but still were in evident heart failure the initial dose of intramuscular digitoxin was 0.4 mg., and then 0.1 daily. An electrocardiogram, consisting of at least five leads (the limb leads and V_2 and V_5) was taken at the start of the treatment and repeated within a week after the start, usually after three or four days.

The same is true of erythrocyte sedimentation rate and blood leukocyte count, to check for any possible evidence of muscle necrosis.

Temperatures Noted

For the same purpose, temperatures were noted, and, in the last 15 patients, also serum glutamic oxalacetic transaminase was determined within three to four days after the start of the intramuscular digitoxin and in most (11) of these cases also just prior to the start. The patients' subjective reactions were noted.

Diuretics were given only to patients with marked peripheral edema and extensive pulmonary rales, and then in most cases only as one or two initial injections. However, those of the 6 patients who had been getting diuretics (Mercuhydrin) previously along with the oral digitalis preparations were continued on Mercuhydrin as before. Bed rest was not enforced in any of the cases, except the one who possibly had a fresh myocardial infarction.

The schedule was started in 56 patients. Only 50 patients, however, were able to get the minimal work-up and follow-up to permit more or less objective evaluation for a report in medical literature.

The patients whose work-up was not considered satisfactory had either some mishap in the laboratory tests or else expired or were discharged before completion of their observation. None, however, expired because of clinically evident heart failure or digitoxin toxicity while receiving the intramuscular digitoxin, and all of them had an evident extracardiac cause of death, usually severe cerebral vascular disease or hepatic coma, in some cases precipitated or accompanied by acute and profuse upper gastrointestinal hemorrhage, possibly due to ruptured esophageal varices or peptic ulcer.

In two patients the intramuscular digitoxin was discontinued prematurely, and they were excluded from the series, because they were getting other intramuscular medications at the same time, and therefore were not satisfactory subjects for evaluation of local reactions.

Although several of the patients included would have been able to take the drug by mouth from very beginning or subsequently, consecutive cases of heart failure encountered by the author were accepted for the study in order to increase the number of observations and include the patients (majority) whose mental status allowed sufficient acuity in the observation of possible side effects.

The patients' age varied from 36 to 84 years. 33 were men and 17 women. 10 had atrial fibrillation, one atrial flutter. The basic diagnosis in most cases was arteriosclerotic or hypertensive heart disease (or combination of them), but five had rheumatic valvular disease, three luetic aortic regurgitation, and two cor pulmonale (one sarcoidosis and one severe asthma).

Results

No intramuscular digitoxin was refused by any of the patients, even when continued for several weeks and the patient was mentally alert and able to offer various other complaints, as was the case in the majority of the cases.

This probably proves most objectively that no significant pain was experienced by the patients, particularly since the nursing personnel in the hospital was apt to interpret any mild resistance by the patient as refusal, then simply omitting the medication.

Therefore, it is worthy of mention that in no case was the intramuscular digitoxin omitted because of the patient's resistance to its administration.

Only one patient complained of some burning for 15 to 30 minutes after an injection of intra-

muscular digitoxin. This particular patient was a markedly obese, neurotic male, and it is possible that in his case, because of the inadequate length of the injection needle, the digitoxin was actually deposited in the subcutaneous fat instead of muscular tissue.

However, even he, while refusing some of the other medications intended for his endocrine condition and ear infection, did not refuse the digitoxin injections, and the electrocardiographic evidence of digitoxin effect, including a decrease of the ventricular rate from 110 to 78 in his heart with atrial fibrillation, was noted after 5 days (no earlier tracing taken after the start of the cardiac treatment).

Digitoxin Effect

Some electrocardiographic evidence of digitoxin effect was present in the electrocardiograms of all 48 patients in whom such follow-up tracings were taken within a week after the start of intramuscular digitoxin and compared with the ones taken at the start of the treatment.

The most common change from the initial tracing was ST or ST-T (or RT and RT-T in the case of absence of S waves) that showed depression, or more depression than in the initial tracing, in at least one of the leads. This occurred in 44 (91.7%) of the 48 cases.

In one patient no follow-up electrocardiogram was taken because of his early death due to cerebral vascular disease, but he is included in the series of 50 because his ventricular rate (as determined by auscultation) decreased from the initial 116 to 88 within three days of the start of the intramuscular digitoxin, and since atrial flutter had been present initially (as proved by electrocardiogram) it is evident that the intramuscular digitoxin had either increased his atrio-ventricular block considerably, or had perhaps even been instrumental in converting the rhythm to normal sinus rhythm.

In another patient, not included in the series of 48, but included in the 50, a 76-year-old woman, the initial dose of digitoxin was 0.4 mg. because of uncertainty in establishing whether or not she had been taking any digitalis preparation, and thereafter, apparently by mistake, the intramuscular digitoxin was continued with the dosage of 0.2 mg. twice daily for two weeks, without patient's subjective complaints except the developing tachycardia.

No earlier follow-up electrocardiogram had been taken after the start of the intramuscular digitoxin, but after two weeks of 0.4 mg. daily ventricular tachycardia was evident on the electrocardiogram (initially it had shown normal sinus rhythm).

In addition to being thus a dramatic evidence of the effectiveness of the intramuscular digitoxin this case, perhaps just as dramatically, contradicted the generally accepted view that digitoxin toxicity is a long-term toxicity, since after discontinuation of the digitoxin the patient's ventricular tachycardia reverted to normal sinus rhythm within two days (after which period another electrocardiogram was taken).

In the remaining four cases multifocal extrasystoles, complete heart block with multifocal ventricular extrasystoles, periodically blocked P waves, and, in one patient who had been taking oral digitalis previously, further slowing of the ventricular rate occurred.

Explained Satisfactorily

There was no elevation of temperature in any patient that could not be explained satisfactorily on other grounds than the possible muscle necrosis that could have occurred after the start of the intramuscular digitoxin.

Neither was there any such elevation of erythrocyte sedimentation rate or blood leukocyte count in the 44 cases in which these were adequately followed and determined. A fluctuation within 25 per cent of the initial values was regarded as not significant.

Several (22) patients had initially elevated erythrocyte sedimentation rates or blood leukocyte counts, either due to non-cardiac causes or myocardial infarction, but those who had normal values initially (sed. rate below 15 mm. per hour according to Westergren's method, and leukocyte count below 10,000 per cu.mm.) showed no increase to abnormal values after the start of the intramuscular digitoxin.

In fact, eight patients showed a decrease of the erythrocyte sedimentation rate, and nine revealed a decrease of the blood leukocyte count, although not more than could have been expected in any of a similar type of patients, with or without intramuscular digitoxin.

Palpable Masses

Local palpable and somewhat tender masses at the site of the injections were observed in two obese patients who, conceivably, received their digitoxin into fatty tissue rather than the muscles.

In the 15 patients in whom serum glutamic oxalacetic transaminase was determined there was no elevation to pathological values (above 40 u.) during intramuscular digitoxin medication. In two there was actual decrease during the therapy.

Clinical Response

Clinically, there was a response of the cardiac failure evident in all 50 cases, except eight patients who initially had had only basal pulmonary rales and/or elevated venous pressure or prolonged circulation time as evidence of heart failure and in whom evidence of improvement was naturally limited to the same methods of examination. There was improvement also in these cases, at most a week after the start of the intramuscular digitoxin, and without the help of diuretics of any type. (Low sodium diet was, of course, observed in all cases).

Only in 10 patients was a diuretic (Mercuhydrin) given as a maintenance treatment, once or twice weekly, six of these patients having been on such maintenance previously, and four others showing initially marked salt-fluid retention.

Disappearance of such retention was rapid, however, and in no case, except one, were there any clinically noticeable edema or pulmonary rales attributable to heart failure after two weeks of treatment with intramuscular digitoxin.

Some of these patients may have been able to get along without any further diuretic, getting only digitoxin and low sodium diet, but such trials were not considered practical since the patients

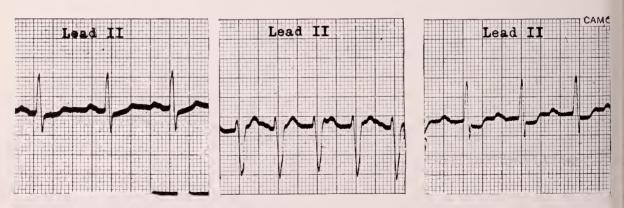


Figure 1. Electrocardiographic tracings (lead II) of the patient who developed ventricular tachycardia during intramuscular digitoxin treatment (see text). A. At the onset of the digitoxin treatment. B. Two weeks later (ventricular tachycardia after 25 doses of 0.2 mg. digitoxin intramuscularly, given twice daily). C. Two days after discontinuation of digitoxin.

had to be discharged as soon as they were able to be discharged, because of the constant overflow of new admissions.

One Exception

The one exception that still had evident pitting edema after two weeks of treatment with the intramuscular digitoxin had a marked anasarca on admission, his body weight being 207 lb. instead of his previous 145 lb.

In this mildly diabetic patient with prolonged circulation time etc., there was also evidence, in addition to the heart failure, of intercapillary glomerular sclerosis, and therefore only one initial injection of Mercuhydrin was given.

The initial two doses of digitoxin intramuscularly were 0.6 mg. each, six hours apart, and then followed by 0.2 mg. daily for about three weeks. Within this time he lost 30 lb. of weight and edema.

Because of the marked edema extending up to the chest the intramuscular digitoxin injections were given into deltoid muscles instead of the usual intragluteal injections.

This patient's private physician reported that patient had been digitalized orally several weeks prior to the hospital admission, but that because of lack of response the oral medication had been discontinued.

Vomiting

Two patients were referred to the hospital primarily because they could not take oral digitalis or digitoxin since they both caused vomiting shortly after each administration.

By the intramuscular route, these two patients were rapidly digitalized, without any gastrointestinal symptoms, and one of them was then able to continue with oral digitoxin as maintenance, the other patient being discharged, also in good condition, with digitoxin suppositories for maintenance.

It may be important to interpolate here that Gold et al. have reported previously³ that in many cases parenteral digitalis preparations could be given without gastrointestinal complaints or symptoms while the same doses orally caused troublesome symptoms, but, unfortunately, in their cases the intravenous route was used and in the majority of cases such digitalis preparations were used that are less suitable for routine treatment than digitoxin.

First Report

Therefore, this report may be the first one illustrating cases in which gastrointestinal side effects, while making oral administration impossible, may be completely absent when the digitoxin is given intramuscularly.

For scientific clarity, it should be mentioned

that both of the cases mentioned in this paper showed no significant evidence of digitalis effect on their electrocardiograms taken after several weeks of attempts at oral administration but before the intramuscular, while the effect was evident within a few days after the start of the intramuscular digitoxin.

Six Patients

Those six patients who had previously been taking digitalis leaf orally gr. 1½ daily for a long time at home, accompanied by Mercuhydrin once or twice weekly, but who nevertheless were hospitalized because of increasing heart failure and were then placed on intramuscular digitoxin also showed rapid improvement, but it is possible that a stricter enforcement of low sodium diet at the hospital contributed to their improvement.

No gastrointestinal symptoms were encountered in any of the 50 patients receiving intramuscular digitoxin that could have been interpreted as symptoms usually described as due to digitalis toxicity or side effects, with the possible exception of one 80-year-old female who vomited shortly after the first two or three maintenance doses of 0.1 mg. daily (after initial digitalization in the ordinary way) but then stopped vomiting while the intramuscular digitoxin was continued unchanged.

Summary

The clinical usefulness of intramuscularly administered digitoxin is reported in 50 consecutive cases of heart failure treated by the author. This method of administration was found to be dependable, effectively carried out in a simple way and without causing more work to the physician than the oral route of administration, and seemingly obviating the gastrointestinal symptoms that may make an adequate oral digitalization impossible in some cases.

Evidence is also presented that intramuscular digitoxin, in the new, essentially non-ethyl alcoholic solvent, does not cause any significant muscle necrosis locally at the site of injection, as far as could be determined with the help of simultaneous observations of temperature, erythrocyte sedimentation rate, blood leukocyte count, and, in the 15 cases in which this test was done, serum glutamic oxalacetic transaminase. No troublesome local pain was caused by the preparation.

References

The intramuscular digitoxin preparation of the type used in this study is available under this official name, and under the trade name of Digitaline Nativelle which contains only 5 per cent ethyl alcohol and is marketed by Varick Pharmacal Company, New York City.

^{1.} V. Strauss et al., Am. Heart J., 44:5, pp. 787-792, Nov. 1952.

^{2.} D. Scherf, verbal communication.

^{3.} H. Gold et al., Am. J. Med., XIII:2, pp. 124-144, Aug. 1952.

MONTHLY CLINICAL PATHOLOGICAL CONFERENCE

EL PASO GENERAL HOSPITAL

July 17, 1958

Frederick P. Bornstein, M. D., *Editor* — Case No. 1054 Presentation of case by Manley B. Cohen, M. D.

History — Dr. Nathan Kleban:

At 1:40 A.M. on April 2, 1958, a 69 year old unemployed widower was admitted from the emergency room with a diagnosis of bronchial asthma, from which the patient had suffered for five years. What the patient meant by this was not described.

Four months of breathlessness, weight loss, cough and chest pain preceded the exacerbation of labored breathing which precipitated his trip to the hospital.

Treatment had been given eight years before for carcinoma of the lip. In 1917 he was supposed to have had typhoid fever.

Physical Examination:

Height 5' 10", Wt. 128 lbs., T. 97.6, R. 20, P. 140, B.P. 100/80.

The patient was weak and coughing when he arrived on the ward. Chest was barrel-shaped, rales were heard over both lung fields. The abdomen was resistant but liver and spleen were not felt.

Hospital Course:

During the four weeks he remained in the hospital, the patient's temperature rose above 99.0 on only two days, the 14th and 19th. Chest conference on April 7 concluded that the probable diagnosis was "carcinoma of the lung". On April 8 the Tumor Clinic recommended bronchoscopy and sputum studies for tumor cells with a clinical impression of probable bronchogenic carcinoma.

Bronchoscopy was performed on the following day under topical anesthesia without difficulty. Findings were as follows: "The cords and trachea were normal. The carina was in the mid-line, was thin and mobile, and in no way fixed. The right main stem bronchus shows a marked bronchitis with severe redness and edema of the entire bronchial mucosa; the orifices were normal; there was no fixation. The left main stem bronchus, and the lower lobe bronchus also showed a very severe bronchitis. Just below the orifice to the superior division was a heaped up area of mucosa having the appearance not dissimilar to leukoplakia. There was no fixation, no tumor was seen. Smears and aspirations were obtained from

the lower lobe bronchus, and biopsies were taken from several areas of the left lower lobe bronchus. There was some bloody ooze in the left lower lobe bronchus." (Note: Insufficient tissue for diagnosis was obtained from the biopsies).

Thoracotomy

Exploratory thoracotomy was recommended by the Tumor Clinic on April 15. Fifty milliliters of fluid were removed from the left pleural space on April 24. Chest conference report four days later noted that the fluid was ". . . thick, pussy, with odor . . ." It was thought that the lesions had extended. Open drainage of the empyema was recommended.

Therapy included bronchodilators, expectorants, combined Penicillin-Streptomycin, vitamin K, whole blood transfusions, Tetracycline, and low salt diet.

Annoying cough productive of thick, mucoid sputum persisted. Severe pain in the chest and left arm began on the 27th hospital day, was later accompanied by nausea, vomiting and shock. Death came on the 28th hospital day, 32 hours following onset of pain.

Laboratory Findings:

Electrocardiograms — April 2, 1958—Normal, April 30, 1958 — Low voltage, atrial fibrillation and possible anterior infarction.

X-Rays: Chest — April 2, 1958: Radiographic examination of the chest reveals an advanced bilateral pulmonary emphysema. There are bilateral opacities extending from the hilar zones, greater on the left than on the right, suggestive of lymphoblastoma. The heart and mediastinal structures are otherwise normal, except for an elongated, arteriosclerotic aorta. The trachea occupies its usual position. Conclusions: Findings consistent with neoplastic lesions bilaterally in the chest.

Re-examinations of the chest on 4-8-58, 4-25-58 and 4-29-58 reported no change.

Papanicolaou sputum and bronchial washing studies on April 5, 9, 16, 19, 21, 24, and 26: No tumor cells seen. April 22: Highly suspicious for tumor cells.

Six sputum and bronchial washing studies for fungus yielded no growth.

Blood counts: 4-2-58: Hb. 8.5 gms., Ht. 35 vol.%, WBC 10,500, Stabs. 2 Segs. 72, Lymphs. 22, Monos. 2, Eosins. 2. 4-5-58: Hb. 15.6 gms., Ht. 45 vol.%. 4-15-58: Hb. 16.6 gms., Ht. 48 vol.%, Segs. 32, Lymphs. 66, Baso. 1, Eosins. 1. 4-25-58: Hb. 14.3 gms., Ht. 42 vol.%, WBC 18,400, Stabs. 2, Segs. 70, Lymphs. 19, Monos. 4, Eosins. 3, Baso. 2.

Urinalyses: 4-2-58: S.G. 1.020—acid, occ. squamous cells, otherwise negative except for few bacteria. 4-9-58: S.G. 1.018, albumin trace, sugar negative, reaction acid, rare WBC, rare round Ep. cell, some amorphous urates and amorphous sediment. 4-26-58: S.G. 1.015, acid, occ. uric acid and calcium oxalate crystals, otherwise negative.

Prothrombin time: 4-3-58: 78%—Bleeding time 1', coagulation time 6'.

Blood chemistry: 4-3-58: Acid phosphatase, .02 Bodansky units. Alkaline phosphatase, 3.25 Bodansky units. Total protein—6.8 mg.%. Albumin—3.6 mg.%. Globulin—3.2 mg.%. Urea Nitrogen—9. mg.%.

Serology: 4-2-58: Negative.

Clinical Discussion-Dr. M. B. Cohen:

This patient was admitted with weight loss, chest pain, rales over both sides; and he was barrel chested. The laboratory findings don't tell us very much except for a severe anemia on admission. There also was elevated globulin and a trace of albumin in the urine on one occasion.

He had multiple sputum studies, bronchoscopy and thoracocentesis. He also had, of course, a number of medications. This is all the protocol details which I believe will be necessary for this discussion.

The patient was seen by several members of the staff. He was in the chest clinic and tumor clinic. It was thought that the patient had a carcinoma and I believe at one time a thoracotomy was recommended, at another time drainage of the empyema.

The man was rather against these procedures, particularly after the bronchoscopy. In any case, after a period of 28 days in the hospital the man developed sudden pain in the left chest and arm and died the following day.

Little Temperature

Here is a man who has been ill apparently for four months. He runs very little temperature. The protocol states that only on two occasions did he run over 99 temperature. He is very ill, raising some sputum.

His chest X-ray reveals a certain series of events which provide us with a possible differen-

tial diagnosis and maybe will show us a definite diagnosis.

X-Ray Discussion—Dr. William Melton

On the admission film, of course one notices the thick density on either side of the mediastinum and the heart. In addition, it looks like a little soft infiltration in the right first interspace with a little pleural thickening and fibrosis. From the X-ray alone I don't think I can say whether it is active or not. There appears to be a mass in the right lung which also is seen in the P-A projection. In the lateral you don't see any density in the middle mediastinum.

All this density appears to be posterior and the anterior border of it seems to be curved somewhat like a fusiform shadow. This gives you more the impression of fluid than a solid lesion.

Then on the X-rays six days later in the lateral you can see this mass overlying the right root zone in the posterior portion of the right lung field. It looks fairly discrete but in the posterior portion of the left lung field you get the density that to me again looks more like fluid than a discrete mass lesion.

Not Much Change

Several X-rays were made in the course of his stay. This mass in the right root zone doesn't change a whole lot but on some of the films you get the appearance it might be clearing a little. However, with difference in techniques it is hard to say.

The left lung stayed about the same; but I see now some infiltration coming up a little higher in the left lung field, not quite as much density posteriorly as before. Of course, he has got arteriosclerosis and a big heart.

The changes in the right apex and left chest posteriorly look more like an inflammatory process, I think, but you certainly can't rule out a malignancy on the basis of the chest films alone.

Dr. Saul B. Appel

Dr. Melton, did you say "of course he has a big heart"?

Dr. Melton

He has got a big chest, but of course the films are a little bit rotated and in his left oblique his left ventricular shadow comes back a long ways and it looks like his apex is elongated here in the P-A. Yes, I think it is enlarged. I think the left ventricular segment is enlarged.

Dr. Appel

There is one other question I would like to ask you. Do you see any evidence of right ventricular enlargement?

Dr. Melton

No, I don't see any evidence of that. I would

expect to see more bulge anteriorly, more to the right of the spine, more prominence in this segment than there was.

Dr. Cohen

We are presented with a patient who has had a fairly good work-up, almost complete, for his lung disease, with no information in the protocol and the laboratory findings that would give us the key to the diagnosis.

The report on bronchoscopy, however, does reveal one thing — a very severe inflammatory reaction. The X-ray picture shows a mass in the right hilar area which is rather irregular, with small densities in the apex of the right lung and a mass or fluid in the left lung field.

Fair Picture

We have an impression of a very sick patient with very little wrong. We have a pretty fair picture which would lead us to a first diagnosis of carcinoma of the lung with extensions into both the right and left lungs.

The X-ray findings, to me at least, go along very well with this. The bronchoscopic findings, however, do not. It is most unusual, and at least in my experience I have never seen it, that a very severe bronchitis is present bilaterally in carcinoma of the lung.

This brings us then to the category of inflammatory diseases, whether granulomatus or infectious, meaning the bacterial diseases. This certainly is not pneumonia of the usual type, so we can discount the bacterial diseases as such.

Most Common Diseases

This brings us then to the granulomatus diseases of which the two most common in this area are tuberculosis and coccidioidomycosis. This is not a very typical set of films for a patient with tuberculosis and on that basis alone one would tend more to think in terms of pulmonary coccidioidomycosis.

When the thoracocentesis was done, thick pus was aspirated. Obviously the man has or had empyema on the left side where the thoracocentesis was done, since only 50 cc. of fluid were obtained.

Whether this was simply a pocket, encapsulated, or whether the needle was placed into the lung where there might have been an abscess or tumor, or both, I can't say. The fact that the patient presumably had empyema does not help us to make a diagnosis as to whether this is primarily neoplastic or primarily inflammatory disease. The diagnoses that I am left with, of course, have to be (1) carcinoma, (2) coccidioidomycosis and (3) tuberculosis.

Dr. Frederick P. Bornstein

Let me ask you a question. How do you cor-

relate both lesions, one on the right and one on the left? You would call it all one disease process?

Dr. Cohen

Yes.

Dr. Licon

We have a tumor clinic report that says probably Ca of the lung, we get a bronchoscopy that finds nothing in terms of Ca of the lung, we also have a report of insufficient tissue removed at bronchoscopy for diagnostic studies. Why was the tissue insufficient, when you submit a human being to the traumatic experience of bronchoscopy?

Dr. Cohen

I beg to differ with Dr. Licon. The bronchoscopy is a trying procedure; bronchoscopy is a very informative procedure. It is sometimes very difficult in the face of no mass, no granulation tissue, to get a large piece of tissue sufficient for the pathologist.

Very often several pieces of tissue are obtained, admittedly very small because that is all you want to bite off at any one time. The pathologist says he has not sufficient tissue to get a satisfactory specimen. It is my contention that almost any bit of tissue regardless of what the pathologist has to say must be sufficient for a diagnosis.

We doctors don't presume to be able to make a diagnosis under all conditions. We do presume to make a diagnosis in the vast majority. The fact that the man was put through several procedures, many procedures, even surgical procedures such as open chest, and no diagnosis was made, does not mean that the methods were wrong.

These methods are right because they are proven in so many other cases. It is a difficult case.

Dr. Bornstein

I just want to say one thing. If the pathologist says that a biopsy is insufficient for diagnosis it simply means that the character of the tissue received is such that the structural alterations that are visible do not permit identification of a disease process.

Clinically it was known that this man had empyema and with empyema you can get large necrotic areas. Suppose that the tissue is necrotic, it simply means that we have the ashes of a fire, we don't know what the house looked like.

Dr. E. S. Crossett

The picture that you have here appears to be a very large carcinoma of the lung which has extended from one side of the lung to the other. It is really a huge mass, it is surprising that carcinoma of this size could not be seen through the bronchoscope. It is one thing that makes you wonder if the patient doesn't have some disease of his lymph nodes rather than of the lung itself, such as a lymphoma. I think that would explain the bilateral adenopathy, the lack of bronchoscopy findings.

No Contraindication

Only about 40 per cent of carinomas of the lung can be seen through a bronchoscope, which means that sixty per cent cannot be seen through a bronchoscope. The fact that 60 per cent cannot be seen is no contraindication for bronchoscopy. I would like to say it is not the heinous procedure it appears to be but I know when I was at the tuberculosis san I bronchoscoped quite a number of nurses with tuberculosis and every one of them said, "Is that all there is to it? I thought it would be a lot worse."

Another thing, this question as to why wasn't sufficient tissue removed. If there is a carcinoma but no mass present to biospy, the bronchoscopist often takes little pieces of tissue from the mucosa here and there in the hopes of showing some submucosal spread.

Dr. Appel

It seems to me that the patient is a chronically ill man with emaciation and anemia plus long standing emphysema, and while carcinoma or malignancy is a very good possibility, still I think we ought to consider Boeck's sarcoid as an additional diagnosis in this case.

That is, Boeck's sarcoid producing the parahilar masses and the peculiar axillary appearance. However, with emphysema and pulmonary fibrosis plus an additional granulomatus disease, this patient would be prone to develop a pulmonary infection from the lack of drainage, lack of circulation, etc. The pneumonia with subsequent empyema could also follow without there being any pulmonary malignancy.

Last Hours

I would also like to suggest that since nobody has discussed the terminal events, the last 32 hours of his life, that we should consider a coronary occlusion. I haven't seen his EKG's but the protocol states that there was a possible anterior infarction plus atrial fibrillation, and there was a previous EKG for comparison.

Therefore, acute myocardial infarction secondary to coronary occlusion and coronary thrombosis is a very good possibility. Another possibility would be extension of the empyema into the pericardium with pericarditis which would

also account for the sudden change, the atrial fibrillation, alterations in the EKG consistent with possible anterior myocardial infarction.

In addition, I think this man was a very good candidate for cor pulmonale secondary to the pulmonary emphysema and fibrosis rather than the other unknown diseases. I purposely asked Dr. Melton if he saw any evidence of right ventricular hypertrophy. Often these patients will not show it and a diagnosis of cor pulmonale is entertained by the clinicians more than the radiolologists.

No Real Evidence

The increased intrapulmonary pressure of emphysema and fibrosis obscures the normal cardiac silhouette of a cor pulmonale. A prominent right ventricle and right ventricular outflow tract may be suppressed so that a heart like this may not show any real evidence of cor pulmonale or pulmonary hypertensive heart disease. Actually the right ventricle probably will show hypertrophy. Another possible reason for his sudden demise, of course, would be pulmonary emboli, in a cachectic individual who has been in bed three or four weeks.

Dr. Bornstein

Dr. Appel mentioned Boeck's sarcoid. How would you relate that to an empyema?

Dr. Appel

Well, not necessarily the Boeck's itself but any patient with this degree of pulmonary fibrosis and empyema with or without further granulomatous disease is an ideal candidate for pneumonia. It may not show the typical radiographic appearance or the typical clinical signs but it is nevertheless present.

Dr. Jack C. Postlewaite

Dr. Appel wants it esoteric, but why not Boeck's sarcoid of the heart itself? I think this is most improbably a Boeck's sarcoid. My question is, is the sputum the same as the empyema fluid?

Dr. Kleban

There were no notations on the chart that there was any similarity between the sputum and the empyema fluid. The only description of the sputum was on the nurses' notes, and at no place was there anything other than just mucoid sputum.

Dr. Postlewaite

Then there was an odor to empyema fluid and not to the sputum?

Dr. Kleban

Dr. Postlewaite, you described the odor of the empyema fluid during the chest conference, but

there was never any odor of the sputum described. Dr. Postlewaite

Dr. Cohen made the comment, the question is this, is this encapsulated empyema fluid or is this interpleural abscesses? Aspiration might be a possible cause, septic emboli might be a possible cause.

Dr. Crossett

One thing I want to bring up, this patient has a lot of enlarged nodes and was a scalene node biopsy done?

Dr. Cohen

He refused.

Dr. Kleban

Dr. Melton, did you agree that the man had severe pulmonary emphysema on the basis of his X-rays?

Dr. Melton

I would say he had a moderate degree of emphysema.

Dr. Postlewaite

It seems to me the differential diagnosis here is between primary and metastatic carcinoma.

Dr. Kleban

I think one of the most interesting problems here was, what was this man having for five years? I think he said he had asthma for five years. We don't know what he had for five years and I don't agree with Dr. Appel that there is evidence he had severe pulmonary emphysema.

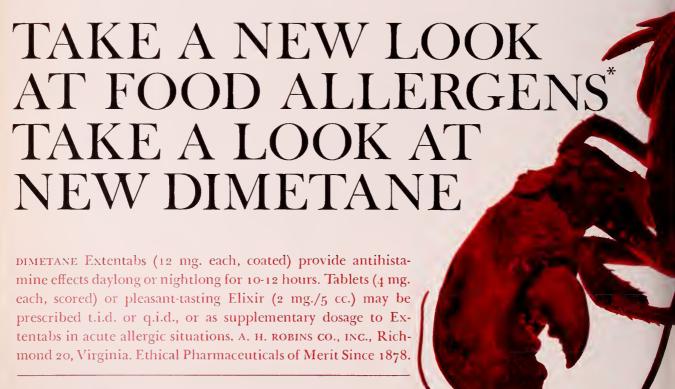
There is nothing by history to suggest that he had, there is nothing on the chart, on his physical examination, other than the description of a big chest and there is no corroboration on the X-rays. The diaphragm on the right is not particularly flattened, the ribs are not particularly wide and the lungs are not particularly dark.

We don't have evidence that this man had severe emphysema and I think the interesting question is, did this man have whatever disease that was found at the autopsy for five years, and is that what produced his so-called asthma that he claimed he had?

Clinical Diagnoses: 1. Pulmonary carcinoma? 2. Lung abscesses?

Dr. Cohen's Diagnoses: 1. Carcinoma of lung. 2. Granulomatous disease of lung.

Pathological Diagnoses: 1. Bronchogenic carcinoma originating in right lower lobe with metastases to left lower lobe. 2. Lung abscess and chronic organizing pneumonitis of left lung. 3. Severe coronary sclerosis.



Pathology Discussion: Dr. F. P. Bornstein

On autopsy we found an emaciated elderly man. The right pleural cavity was partially obliterated by fibrous adhesions. The left pleural cavity was completely obliterated by stone hard rigid adhesions indicating that the old empyema had been absorbed and healed.

The heart weighed 450 grams which means moderate enlargement of the heart. There was considerable scarring on the anterior wall. The coronary ostia were narrow. The left main descending branch was occluded by old calcific masses and the smaller coronary branches were occluded by calcific lesions. In short, he had enough coronary disease to explain the chest pain and sudden death.

Abscess Cavity

The examination of the lungs revealed a stone hard left lower lobe which contained an abscess cavity. This cavity took up the superior onethird of the left lower lobe. The wall of the abscess was composed of necrotic torn tissue and the cavity was filled with pus. The remainder of the lung was indurated with yellowish areas of necrosis.

In the right lower lobe of the lung there was a nodular mass which measured four cm, in greatest diameter with some areas of necrosis. The lymph nodes were markedly swollen. On gross examination, I was convinced the right lobe presented definite carcinoma.

However, I was impressed by the inflammatory changes of the left lung which I interpreted coccidioidomycosis.

Microscopic

On microscopic examination, however, an obvious carcinoma was found in both lungs modified by the severe inflammatory lesions. As is so often the case, the carcinoma had compressed the bronchus. Bronchial secretions were retained and infected. The severe pneumonitis with abscess formation became the predominant feature.

This also explains why a biopsy from this region failed to reveal any tumor tissue. It is difficult to decide at the present time whether the tumor originated in the right or left lung.

The case was presented mainly to show how a superimposed infection can modify lung disease to such an extent that it becomes impossible to establish a primary diagnosis. Death unquestionably was due to acute coronary disease.



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1. Thomas, J. W.: Ann. Allergy 16:128, 1958 (PARABROMDYLAMINE MALEATE)

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Physicians Participate In Athletic Conference

Ten members of the El Paso County Medical Society and one dental surgeon participated in the first El Paso conference on prevention and management of athletic injuries Aug. 13.

The conference, held in the El Paso County Medical Society's Turner home, was arranged by the Society working in conjunction with the El Paso Public Schools and Texas Western College. Dr. Russell L. Deter was chairman. Coaches, trainers and others in the sports field attended.

The meeting was so successful, with interest from cities in New Mexico and West Texas, that officials are looking forward to an expanded conference of the same type next year.

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Coming Meetings

American Fracture Association, annual meeting, Oklahoma City, Oct. 1-3, 1958.

Academy of Psychosomatic Medicine, fifth annual meeting, Park Sheraton Hotel, New York, Oct. 9-11, 1958.

American Cancer Society, Annual Scientific Session, "Symposium on Carcinoma of the Colon and Rectum", Biltmore Hotel, New York, Oct. 20-21, 1958.

Southwestern Medical Association, annual meeting, Tucson, Oct. 23-25, 1958.

Southwest Obstetrical and Gynecological Society, annual meeting, Paradise Inn, Phoenix, Nov. 14 and 15, 1958.

American College of Surgeons, Sectional Meeting, Shanrock Hilton Hotel, Houston, Texas, Feb. 2-4, 1959.

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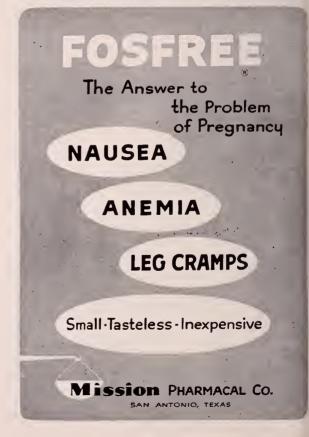
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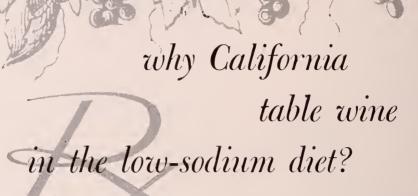
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OCTOBER, 1958 537



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^{1.} Lucio, S. P. and Hunt, M. L.: Am. J. Digest. Dis. 2 26 (Jan.) 1957.

^{2.} Goetzl, F. R.: Permonente Found. M. Bull. 8:72 (April) 1950.

^{3.} Irvin, D. L. ond Goetzl, F. R.: Permonente Found. M. Bull. 9:119 (Oct.) 1951.

^{4.} Irvin, D. L.; Durro A., and Goetzl, F. R.: Am. J. Digest. Dis. 20.117 (Jan.) 1953.

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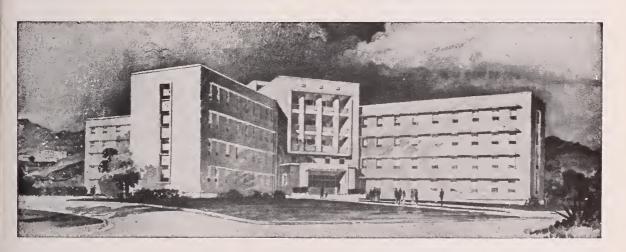
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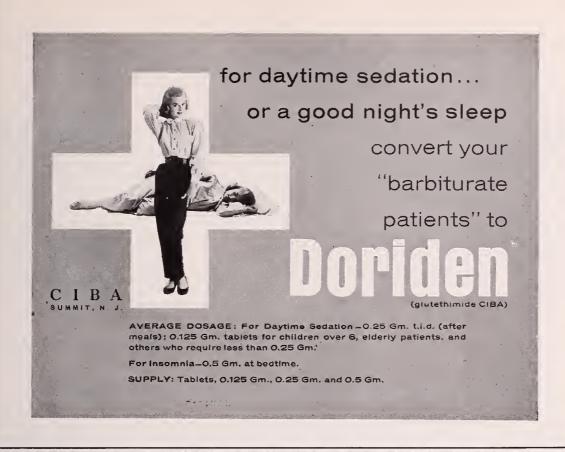


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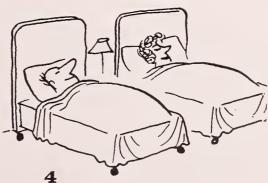
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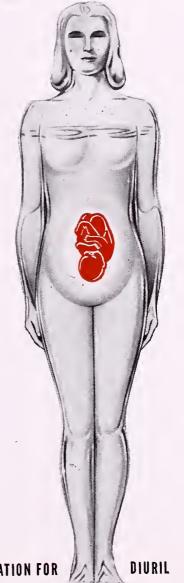
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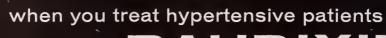
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*Finnerty, F. A. Jr.: New York State J. Med. 57:2957 (Sept. 15) 1957.

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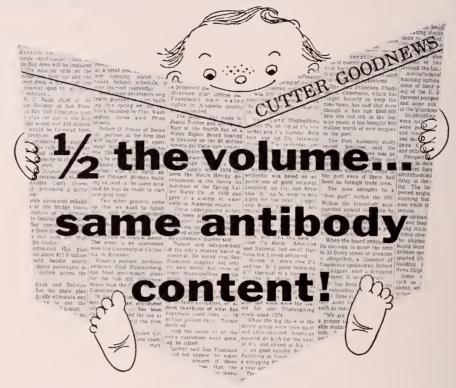
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Southwestern MEDICINE

VOL. XXXIX

OCTOBER, 1958

No. 10



THE PRESIDENT'S COLUMN

The Annual Meeting

By Louis G. Jekel, M.D., Phoenix

The Annual Convention of the Southwestern Medical Association will be held Oct. 23, 24, and 25, at the Pioneer Hotel in Tucson.



The Tucson Committee has spared no effort and has prepared an outstanding program with guest speakers of national reputation. Dr. H. D. Cogswell and his committee deserve a world of credit for the results they have obtained.

It will be a pleasure to hear Dr. George C. Andrews, dermatologist of New York: Dr. John

Dr. Louis G. Jekel of New York; Dr. John I. Brewer, gynecologist of Chicago; Dr. John W. Henderson, opthalmologist of Rochester, Minnesota; Dr. R. V. Platou, pediatrician of New Orleans; Dr. John R. Schenken, pathologist of Omaha; Dr. Reginald H. Smart, internist of Los Angeles; and Dr. Robert M. Zollinger, surgeon of Columbus, Ohio.

These men will present a well-rounded group of papers which will be of benefit to generalist and specialist alike.

The new plan of having round-table discussions with smaller groups should be a popular move. The members will thus be enabled to have closer contact with the guest speakers and have the opportunity to present specific problems from their own practices for solution. I am looking forward to this innovation.

Specialty Groups

Specialty groups will hold state and regional meetings in conjunction with our meeting. This

procedure has come to be the usual thing at these fall meetings.

Members of the American Academy of General Practice can obtain credit for attending these lectures and in this way help fulfill their annual requirements.

The ladies can be assured of much interesting entertainment. They will not be bothered with business meetings, and will be able to participate in various sports such as golf, tennis, and swimming, and to attend a fashion show and a morning social hour.

The men will be given time to enjoy entertainment also, including the usual golf and tennis, swimming and horseback riding.

Football Game

Tucson, as you know, is the home of the University of Arizona. It will be possible for all the men and women to take a tour of the campus, and to see, among other things, the outstanding museums which are a part of this fine institution. A football game will be held on Saturday night between the University of Arizona and the University of Idaho. The conventioners may avail themselves of the opportunity to see this spectacle.

All in all, from a scientific and professional point of view, and from a social point of view you may be assured of an enjoyable and profitable half-week. As President of the Association. I wish to express the hope that I may personally greet the many good friends I am lucky enough to have in the Southwest, and to meet many other physicians of the region whom I have not yet had the pleasure of knowing.

I invite you, and urge you, one and all, whether or not you are now a member of the Association, to gather with us at Tucson—The Old Pueblo.

OCTOBER 1958 555

CURRENT THERAPY

Antibiotics Annual 1957-1958: A Book Review

By JACK A. BERNARD, M.D., El Paso

Antibiotics Annual 1957-1958, edited by Henry Welch, Ph.D., and Felix Marti-Ibanez, M.D., Medical Encyclopedia, Inc., New York, N.Y., 1958, Price \$12.00,

A necessary text and reference for medical libraries and those interested in the most recent works in antibiotic medicine, it comprises 161 papers presented at the Fifth Annual Symposium on Antibiotics, Oct. 2-4, 1957.

This text has articles of interest for all of us. For example, for those interested in the chronic infections of the urinary tract, there is a nice study from the Thorndike Memorial Laboratory on methionine as a urinary tract antiseptic, and also its usage in combination with mandelic acid. Or for those interested in the treatment of pulmonary tuberculosis, there is an article on the use of pantothenate of streptomycin (Lederle-Didrothenate—a combination of dihydrostreptoinvoin sulfate and dihydrostreptomycin tripantothenate). The authors feel that it is superior to previously used drugs and recommend further audiographic experience in their final summation. Such audiographic studies are reported in a subsequent article by Hewitt et al.

Fungal Diseases

Papers on the use of Amphotericin | Squibb-Fungizone | in fungal diseases are extremely interesting and encouraging. Improvement was noted in patients with cryptococcus, histoplasmosis and blastomycosis. The drug thus shows real promise in the treatment of systemic fungal infections.

An article from the Philippines reports on Asian influenza. As the authors point out, it has been generally accepted that antibiotics have no place in the management of influenza until a secondary bacterial infection has been shown to be present, this being predicated on the fact that no antibiotics known at present can possibly affect the infecting virus. However they found evidence of secondary bacterial infection at autopsy in 86.36 per cent of the patients who died with the clinical

diagnosis of influenza. The value of broad spectrum antibiotics given early in the disease is pointed out. (The authors used oxytetracycline—Terramycin and tetracycline—Tetracyn, trade names of Chas. Pfizer & Co.).

Bronchial Pneumonia

The authors emphasize that in their patients who died of bronchial pneumonia, the blood count was of no value in determining if secondary bacterial infections were present, as many who died had either a normal or only a very slight elevation in their white count. Also the time factor was not helpful in determining the onset of the secondary bacterial infections as most of the deaths took place from the third to the seventh day of the patient's illness. Thus the value of broad spectrum antibiotics given early in the disease is emphasized.

Finally there are panel discussions on "Rheumatic Fever Prophylaxis", "Host Resistance and Chemotherapy", and "Antibiotics as Antitumor and Antiviral Substances". For example, it is pointed out that only 35 per cent of cancer cures are amenable to surgery or other physical treatment, and that chemotherapy is the only hope for 65 per cent of every 100 patients. Thus the problem is critical and the comments are extremely interesting.

Host Resistance

As to host resistance there is a discussion of the properdin system and the discussion of the protection afforded by properdin is quite interesting. Gamina antibody effectiveness is also discussed.

In the rheumatic fever discussions there are some very interesting statistics and it is generally recommended that larger doses of penicillin be given in the treatment of streptococcal infections when this occurs in known rheumatic fever subjects.

Antibiotics Annual: An excellent text full of a host of information — well presented, carefully worked out — of interest to physicians in all branches of medicine. Highly recommended.

MEETINGS

Dr. John R. Winston of Chicago Heads Western Railway Surgeons

Dr. John R. Winston of Chicago, Ill., was elected president of the Western Association of Railway Surgeons in Seattle. Wash., at the association's 55th annual meeting Aug. 7-9.

A native of Oklahoma, Dr. Winston received his B.S. and M.D. degrees from the University of Oklahoma. He took his internship and a two year residency in surgery at the Scott and White Hospital in Temple, Texas. After six years in general practice, he returned to the Scott and White Clinic staff in the Department of Medicine, subsequently being assigned as assistant chief physician and later as chief physician of the Santa Fe Hospital at Temple. Since 1951 he has served as medical director of the Santa Fe Railway System.

Dr. Winston in 1953 served as chairman of the section in internal medicine of the University of Texas Graduate School of Medicine and as a member of the faculty of the University of Texas Graduate School of Medicine prior to moving to Chicago in 1956. He is certified by the American Board of Internal Medicine, by the American Board of Preventive Medicine (occupational medicine) and is an associate in medicine with the Medical School of Northwestern University. He is a Fellow of the American College of Physicians,

Other Officers

Other new officers are Dr. Joe R. Gandy, Houston. Tex., first vice-president; Dr. Louis E.

Officers and delegates compared program notes at the annual meeting of the Western Association of Railway Surgeons. They were, from left, Dr. Bernard E. McConville, Seattle, retiring president, named chairman of the executive committee; Dr. Graham Owens, Kansas City, Mo., re-elected secretary; Dr. Harry O. Hund, San Rafael, Calif., re-elected treasurer; Dr. James F. DePree. Seattle: and Dr. F. Burton Jones, Vallejo, Calif.





Railway surgeons made new friends during the meeting. Dr. K. F. McDermott of Grand Island, Neb., left, greeted Dr. L. Fred Lundy of Seattle, right, after being introduced by Dr. G. R. Farrell, Reno, Nev.

Jones, Roseville, Calif., second vice-president; Dr. Graham Owens, Kansas City, Mo., re-elected secretary; Dr. Harry O. Hund, San Rafael, Calif., re-elected treasurer; and Dr. Bernard E. McConville, Seattle, Wash., retiring president, who was named chairman of the executive committee, succeeding Dr. Glenn F. Cushman, San Francisco.

Delegates selected Denver, Colo., for their next meeting in September, 1959.

More than 100 surgeons, representing a score of railroads, and their wives attended the three-day gathering in the Benjamin Franklin hotel here. The convention coincided with the annual Seattle "Seafair" celebration.

Highlight of the scientific program at the meeting was the presentation of the annual Dr. William T. Cummins Memorial Lecture, made this year by Dr. Edward B. Spier, consultant in surgery at the University of Washington School of Medicine. The Seattle surgeon's topic was "The Surgery of Peptic Ulcer".

Social Events

Fifteen other scientific papers were presented. In addition, the delegates' schedule was arranged to provide a number of social events. Most delegates and their wives attended the "Aqua Follies," an evening water-ballet and stage show presented outdoors at the Green Lake Aqua Theater.

Dr. Graham Owens of Kansas City, Mo., left, and Dr. James F. De Pree of Seattle checked a tape recorder which recorded papers and proceedings of the Western Association of Railway Surgeons meeting in Seattle. Dr. Owens is secretary of the Association. Dr. De Pree was chairman of the committee on local arrangements.



Two participants on the program checked a 4x5 Kodachrome slide of pathological tissue. They were Dr. Matthew H. Evoy, left, Seattle, and Dr. Stephen J. Wood, Seattle.



A sight-seeing cruise on Lake Washington and Puget Sound, and a visit to the Longacres Race Track were other events. The annual banquet, following a social hour, was the most important dinner event.

After the convention closed, many doctors also remained in Seattle to see the annual unlimited hydroplane racing for the Gold Cup on Lake Washington.

Dr. Owens was chairman of the scientific program committee, assisted by Drs. Cushman, De-Pree and Winston. Dr. DePree headed the local arrangements committee. His committee members included Drs. Stephen J. Wood, James D. Layman, John W. Shiach, J. L. Ash, William J. Kelly

and Alexander Grinstein, all of Seattle.

Papers Presented

Papers were presented at the scientific sessions by Dr. William A. McMahon, Seattle; Dr. Matthew H. Evoy, Seattle; Dr. James D. Layman and Dr. William J. Kelly, Seattle; Dr. John R. Mullins, Seattle; Dr. Carl E. Chism, Seattle; Dr. Bradford Simmons and Dr. Edward Washburn, San Rafael, Calif.; Dr. D. M. Ulrich and Dr. Stephen J. Wood, Seattle; Dr. James M. Nelson, Seattle; Dr. William T. Duggan, San Francisco; Dr. Roger W. Barnes, Los Angeles; Dr. Carl J. Pinard, Seattle; Dr. J. Irving Tuell, Seattle; Dr. Dean K. Crystal, Seattle: and Dr. McConville.



Three physicians attending the 55th annual meeting of the Western Association of Railway Surgeons stopped for a chat between sessions. They were, from left, Dr. I. N. Ingram, San Francisco; Dr. F. E. Cooley, Fresno, Calif., and Dr. S. E. Senor, St. Joseph, Mo.

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Southwest Obstetrical and Gynecological Society To Hold Eighth Annual Meeting Nov. 14-15, in Phoenix

The eighth annual meeting of the Southwest Obstetrical and Gynecological Society will be held Friday and Saturday, Nov. 14 and 15 in the Paradise Inn at Phoenix.

Guest speakers will be Donald L. Hutchinson, M.D., assistant professor in obstetrics and gynecology, University of California at Los Angeles School of Medicine: Michael J. Jordan, M.D., associate professor, clinical obstetrics and gynecology, New York University Medical School: Ralph A. Reis, M.D., professor of obstetrics and gynecology, Northwestern University Medical School, Chicago: and Ernest L. Wynder, M.D., of the Memorial Center for Cancer and Allied Diseases, New York.

Charles E. Van Epps, M.D., of Phoenix is president of the Southwest Obstetrical and Gynecological Society. Other officers are: Donovan Johnson, M.D., Santa Ana, Calif., president-elect; Paul O. Wiig, M.D., Reno, Nev., vice-president; Zeph B. Campbell, M.D., Phoenix, secretary; and Raymond Jennett, M.D., Phoenix, treasurer.

SCIENTIFIC PROGRAM Friday, November 14th Morning Session Registration

9:00-10:00 "The Placenta as a Transfer Agent," Donald L. Hutchinson, M.D., Assistant Professor in Obstetrics and

This is the Paradise Inn where the Southwest Obstetrical and Gynecological Society will hold its annual meeting Nov. 14 and 15. Located at the base of Camelback Mountain and overlooking Paradise Valley near Phoenix the Paradise Inn boasts an 18-hole championship golf course, tennis courts and swimming pool, and is famed for its outstanding cuisine.



Gynecology, University of California at Los Angeles School of Medicine.

10:00-11:00 "Management of Atypical Lesions of the Cervix," Michael J. Jordan, M.D., Associate Professor of Clinical Obstetrics and Gynecology, New York University Medical School.

11:-00-12:00 "Towards a Solution of the Tobacco Cancer Problem," Ernest L. Wynder, M.D., Memorial Center for Cancer and Allied Diseases, New York. 12:00 Noon - 2:00 p.m. Round Table Luncheon

Afternoon Session

2:00-3:00 "Present Management of Carcinoma in Situ of the Cervix," Michael J. Jordan, M.D.

3:00-4:00 "Midwifery in America," Ralph A. Reis, M.D., Professor of Obstetrics and Gynecology, Northwestern University Medical School, Chicago.

4:00-5:00 "Repair of Injuries and Methods of Diversion of Urinary Channels in the Female," Michael J. Jordan, M.D.

Evening

8:00 p. m. — Bud Brown's Barn Eats, Drinks, Dancing and Fun! Saturday, November 15th

Morning Session

9:00-10:00 "Clinical Value and Technique of Placental Localization." Donald L. Hutchinson, M.D.

10:00-11:00 "Endocrine Therapy in Obstetrics and Gynecology," Ralph A. Reis, M.D.

11:00-12:00 "Etiology of Carcinoma of the Cervix," Ernest L. Wynder, M.D.

Afternoon

Recreational Activities

Evening

8:00 p.m. Banquet — Paradise Inn

Dr. Chester Russell of Artesia is Dead



Dr. Russell

Dr. Chester Russell, dean of eastern New Mexico medicine and former president of the New Mexico Medical Society died this summer in his home in Artesia.

Dr. Russell was graduated in the Class of 1898 at Barnes Medical College in St. Louis. He was educated in the schools of Russellville, Ark., and was a graduate of the University of Arkansas at Fayetteville.

Dr. Russell practiced in Russellville for a number of years and then came to New Mexico and located in Artesia in 1915. There he soon gained recognition as a successful physician and man of intellect and good judgment.

Dr. Russell served Artesia in many capacities. He was a member of the school board, the city council, the chamber of commerce and was a founder and charter member of the Artesia Rotary Club.

Dr. Russell was a past president of the Pecos Valley Medical Society and the Eddy County Medical Society as well as of the New Mexico Medical Society. Since 1911 he has been a surgeon for the Santa Fe Railroad.

Dr. Russell is survived by his widow, Mrs. Esther Russell: a son, Chester, Jr.; a daughter, Miss Dora Russell; and two sisters, Miss Ruth Russell of Artesia and Mrs. J. Floyd Huggins of Russellville, Ark.

El Paso Postgraduate School To Present Course in Cardiology

The El Paso Postgraduate Division of the University of Texas School of Medicine will present a one-day course in cardiology starting at 8:30 a.m., Sunday, Oct. 12 in the El Paso County Medical Society's Turner Home, 1301 Montana Street.

Seven credit hours will be given physicians attending the course, which is open to doctors from New Mexico, Arizona and Mexico as well as Texas. Tuition fee will be \$10. Dr. Ralph H. Homan is director of the El Paso Postgraduate School.

The program follows:

8:30-9:20 A.M. Sudden Death Due to Heart Diseases Other Than Coronary Arteriosclerosis — Dr. Frederick P. Bornstein.

9:20-10:10 A.M. Electrolyte Disturbances in Treatment of Chronic Heart Failure — Dr. Nathan M. Kleban.

10:10-11:00 A.M. Basic Concepts of Fat Metabolism — Dr. Ray H. Skaggs, Houston, Texas.

11:00-11:50 A.M. Traumatic Heart Disease — Dr. Saul B. Appel.

1:30-2:20 P.M. New Drugs for Treatment of High Blood Pressure — Dr. Lester C. Feener.

2:20-3:10 P.M. Results of Open Heart Surgery in El Paso — Dr. E. S. Crossett.

3:10-4:00 P.M. Selection and Management of Patients for Open Heart Surgery — Dr. John M. Verosky.

4:00-5:00 P.M. Practical Dietary Therapy in Coronary Artery Disease — Dr. Ray H. Skaggs, Houston, Texas.

(Each paper will be 40 minutes long followed by a 10-minute question and answer period.)

Psychosomatic Academy to Meet Oct. 9-11 in New York

The fifth annual meeting of The Academy of Psychosomatic Medicine will be held Oct. 9-11, at the Park Sheraton Hotel in New York. The program will be devoted to "The Psychosomatic Aspects of Internal Medicine" and will include formal papers, panel discussions and luncheon conferences.

The meeting will be open to all scientific disciplines, as well as psychologists, social workers and nurses. Information may be obtained from Dr. Bertram B. Moss, Suite 1035, 55 East Washington St., Chicago 2, Illinois.

U. S.-Mexico Medical Society To Meet in Guadalajara

The Medical Society of the United States and Mexico will meet Nov. 6-8 in Guadalajara. There will be an extensive scientific program as well as much entertainment and sightseeing.

A special train or railroad car leaving from Nogales, Ariz., will be provided for American members who attend the meeting. For further details write to Juan E. Fonseca, M.D., 2409 East Adams St., Tucson. Dr. Fonseca is secretary of the Medical Society of the United States and Mexico.

Physicians wishing to join the Society should write to Dr. Roberto Morfin Alvarez, Olas Altas 73, Sur, Mazatlan, Sinaloa, Mexico. Dr. Morfin Alvarez is treasurer of the Society.

Coming Meetings

Academy of Psychosomatic Medicine, fifth annual meeting, Park Sheraton Hotel, New York, Oct. 9-11, 1958.

American Cancer Society, Annual Scientific Session, "Symposium on Carcinoma of the Colon and Rectum", Biltmore Hotel, New York, Oct. 20-21, 1958.

Southwestern Medical Association, annual meeting, Tucson, Oct. 23-25, 1958.

Postgraduate Course, Selected Subjects in Internal Medicine, arranged by The American College of Physicians, Mann Hall, The Mayo Clinic and Mayo Foundation, Rochester, Minn., Nov. 3-7, 1958.

Southwest Obstetrical and Gynecological Society, annual meeting, Paradise Inn, Phoenix, Nov. 14 and 15, 1958.

Postgraduate Course, Congenital Heart Disease, arranged by the American College of Physicians, The Johns Hopkins Hospital, Baltimore, Md., Nov. 17-22, 1958.

University of Colorado Medical Center, Denver, Colo., Postgraduate Course, General Practice Review, Jan. 19-24, 1959.

American College of Surgeons, Sectional Meeting, Shamrock Hilton Hotel, Houston, Texas, Feb. 2-4, 1959.

Southwestern Medical Association Meeting Program for Ladies Is Announced

The schedule of women's social activities during the annual meeting of the Southwestern Medical Association Oct. 23-25 in Tucson has been announced by Mrs. James N. Lane, chairman for the women.

The complete scientific program including speakers was published in the September edition of SOUTHWESTERN MEDICINE.

The women's program follows:

Thursday, October 23

9:30-11:00 a.m.—Coffee, Roof Garden, Pioneer Hotel 2:30- 4:30 p.m.—Guided tour of University of Arizona

Friday, October 24

9:30-11:00 a.m.—Coffee, Roof Garden, Pioneer Hotel. Buffet luncheon and style show at the Tucson Country Club

Dress will be casual and sports clothes.

The Tucson Country Club will be available for golf, tennis and swimming throughout the meeting.



Above is a view of Tucson, showing the Catalina Mountains and the campus of the University of Arizona in the background.

Technical Exhibitors

Coca Cola Company
Myers Carter Laboratories. Inc.
The Upjohn Company
Merck Sharp & Dohme
Lederle Laboratories
G. D. Searle & Co.
Burroughs Wellcome & Co.
Ames Company
Sandoz Pharmaceuticals
Standard Surgical
Abbott Laboratories
Alcon

Parke, Davis & Company
Rocky Mountain Pharmacal
Mission Pharmacal Co.
Winthrop Laboratories
A. H. Robins Co., Inc.
Southwestern Surgical Supply Company
Eli Lilly and Company
U. S. Vitamin Corp.
E. R. Squibb & Sons
Desitin Chemical Co.
The Wm. S. Merrell Company
Doho Chemical Corporation

OCTOBER, 1958

ORTHOPAEDIC SURGERY NOTES

Orthopaedic Surgery in the "Twin Cities"

This editor has just returned from the "Twin Cities." Minneapolis and St. Paul, Minn. It is most interesting to visit old orthopaedic friends and review some of the ideas at "The University," as the University of Minnesota is known there.

I believe that the trend in orthopaedic surgery is illustrated most definitely in this area of our country. It is very noticeable that the crippled children's work at the crippled children hospitals there has diminished markedly. In the future it will be found better for the resident to spend only six months at the crippled children type hospital.

Major Trend

The major trend in orthopaedic surgery today seems to be towards rehabilitation. It is most important, once the patient has overcome the major part of his disability, that he be brought back to proper physical condition for his work. This means a gradual increased activity program and special training.

This is a phase of our work which is most important to industry. The patient cannot be taken out of his cast or have his main orthopaedic treatment discontinued, due to healing up to that point, and then expect to go over immediately and do an eight-hour day of work. He must do a gradual amount. He must mobilize joints and must gradually be trained until he can

do a full day of work before it can be expected that he can do his job well again.

Rehabilitation Unit

Dr. Harry B. Hall of the Staff of the Orthopaedic Department of the University of Minnesota gave me a guided tour through the new rehabilitation unit at the Lakeview Hospital. This is just across the river from the University of Minnesota. The rehabilitation unit was built on to the hospital rather than as a separate unit elsewhere. In this way, hospital patients can easily be transferred back and forth depending on their need.

The cost per bed is lower in the rehabilitation section. There is a very adequate space for occupational therapy and physical therapy. There is a gymnasium for all types of advanced training and there is a swimming pool with a beautiful view of the river and "The University." There is also a large meeting hall in which the staff can meet and discuss their problems.

The most interesting aspect of rehabilitation is that it applies to fields other than orthopaedic surgery.

In fact, the rehabilitation unit in Minnesota was also sponsored by a cardiologist and a psychiatrist. Patients in other fields also require rehabilitation.

Don't Remove Fixation Too Soon

F. M., age 13, was first seen by the editor on Jan. 20, 1952. He had a draining sinus and recurrent infection with drainage of pus on the lateral aspect of the thigh. This was a result of a compound comminuted fracture of the left femur, which the patient sustained on Sept. 23, 1951. He had been treated in that fabulous well-known place called elsewhere.

On examination there was quite a bit of redness and induration of the soft tissues around the sinus tract and marked limitation of knee joint motion. Roentgenograms revealed an infected questionably united fracture with sequestrum formation (1A & B), the presence of an intra-

medullary femoral rod and wire loops constituting the fixation for the fracture.

Patient Toxic

Despite the use of anti-biotics, the fracture continued to drain and the patient became toxic. It was felt that it would be best to remove the dead bone and wire. This was carefully done on April 14, 1952. (2A & B). During the operation the intramedullary rod was clearly visualized following the removal of all avascular bone and wire loops. All the purulent drainage was carefully removed, the area was carefully irrigated, the rod was carefully cleaned. It was felt that there was not sufficient union to maintain position and therefore

it was felt that the rod must definitely be left in.

Surprisingly enough the wound healed uneventfully. The patient remained comfortable and able to be about on crutches. He did not have any further recurrence of swelling and pain and drain-



Figure 1

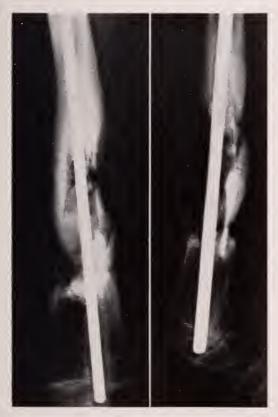


Figure 2

age. By November 20, 1952 it was felt that the bone had united sufficiently to allow removal of the rod.

Bears Weight

Check up on March 3, 1953 revealed that the patient could bear weight up to 50 percent and he felt very comfortable. (3A & B.)

This patient, when last seen, was able to walk normally, his bone had filled in completely naturally without any further surgery.



Figure 3

This case merely illustrates the fact that internal fixation should be left in as long as possible. It is not necessarily always a source of infection.

Disastrous Results

The editor has seen disastrous results with malunion and non-union following the hasty removal of internal fixation following early or acute infections. These patients usually failed to recover from the infection and also had a very difficult problem and deformity.

The editor is greatly indebted to the editor of CLINICAL ORTHOPAEDICS, Dr. Anthony F. DePalma, for permission to use these illustrations. Illustrations are from the Second issue of CLINICAL ORTHOPAEDICS "The Avoidance of Complications in the Treatment of Fresh Fractures of the Femur With a Hansen-Street Nail," by Dr. Morton H. Leonard of El Paso, pages 27 to 37. J. B. Lippincott and Company, Philadelphia 1953.

APHORISMS and MEMORABILIA

Truths and Concepts Concerning The Nervous System

- 1. "Epilepsy beginning at the age of fifty or over is rarely epilepsy."—RICHARD CABOT, source uncertain.
- **2.** "It is dangerous to diagnose multiple sclerosis when it begins after forty years."—R. Grinker, *Neurology*, 1934, p. 702. C. Thomas, Springfield, Ill.
- **3.** "In a young individual transient attacks of double vision are extremely suggestive of multiple sclerosis."—R. Grinker, p. 707, loc. cit.
- **4.** "The most common (false localizing sign) is external rectus paralysis due to compression of the sixth nerve, for its paralysis whether on one or both sides never in the presence of increased intracranial tension can be accepted as having any localizing or lateralizing value."—R. Grinker, p. 546, loc. cit.
- **5.** "In tabes (dorsalis) one looks for evidence of syphilis in three places:—the aortic region, the tongue and the shins."—MacDonald Critchley, *Proc. Roy. So. Med.*, 27: part 2, 1352, 1933-34.
- **6.** "A Kernig at twenty is much more important than in an older person whose legs are more or less stiff all the time."—RICHARD CABOT, *New England J. Med.*, 201: 140, 1929.
- 7. "It is fair to say that when we have sphincter difficulty we have either a patient with a very severe cerebral disturbance so he is incontinent—or we have a moderately severe cord affection."—JAMES AYER, New England J. Med., 198: 818, 1928.

Permanent Sign

- **8.** "Argyll Robertson pupil—is not necessarily indicative of either tabes or general paresis; it sometimes exists alone—a permanent sign that the patient has had syphilis, but not part of a progressive degeneration." LORD HORDER, Medical Notes, Oxford Press. London, 1921, p. 102.
- **9.** "Non traumatic bloody spinal fluid has the following characteristics: (1) If three successive samples are taken they all show complete admix-

- ture of blood and spinal fluid, (2) no coagulum appears when the specimen is allowed to stand. (3) when the red cells sink to the bottom the supernatant fluid is colored yellow or orangebrown."—George Riddoch, *Proc. Roy. Soc. Med.*, 8: 1924-25, part 3, Sec. Ophthalmology, p. 7.
- 10. "The pain of tabetic crises, even when severe. is strikingly unaccompanied by tenderness to deep pressure, though the patient may complain bitterly of the weight of a sheet or ice cap."—J. Stokes, Modern Clinical Syphilology, W. B. Saunders Co., 1936, p. 1139.

Doubt Diagnosis

- 11. "A pressure above 200 mm., a cell count greater than 100 per cubic millimeter, a protein content greater than 100 mg. per 100 c.c. or a strong colloidal gold curve is rare in epidemic encephalitis. The presence of any one of these findings should cast doubt on the diagnosis. A sugar content below 50 mg. does not occur in epidemic encephalitis."—H. MERRITT AND F. FREMONT SMITH, W. B. Saunders Co., The Cerebrospinal Fluid, 1937, p. 140.
- **12.** "Epileptic mania is the most furious of all varieties of mania."—(Hughlings Jackson) Med. Axioms, Aphorisms and Clinical Memoranda.—J. A. Lindsay, H. K. Lewis & Co., 1923, p. 133.
- **13.** "The sudden spasm of the larynx which occurs in the laryngeal crises of tabes is sometimes also a cause of sudden death."—Byrom Bramwell, *Clinical Studies*, R. R. Clark, Edinburgh, 1907. p. 379.
- 14. "It is a rare thing for cerebral hemorrhage to cause rapid death; within half an hour for instance."—HUGHLINGS JACKSON, Reynold's System of Medicine, vol. 1, p. 925, Lea, Phil., 1879.
- 15. "Recurring attacks of ophthalmoplegia may be the first symptom of such general nervous diseases as tabes and disseminated sclerosis, and recurring attacks of diplopia may be the forerunner of myasthenia gravis."—Stevens, Medical Lectures, 1923.

ORIGINAL ARTICLES

Schizophrenia in Everyday Practice*

By Ann Brennan Damiani, M.D., Helen M. Campbell, Ph.D., and J. Edward Stern, M.D.. all of El Paso

There is a paradigm or pattern which one can apply to every, or nearly every, situation in medicine. It is practical to realize that each clinical entity may occur in mild, moderate, or severe forms and in reversible or irreversible stages. It is true that our first knowledge of a clinical entity usually comes from severe, irreversible cases, that is to say, from those which are likely to come to the attention of the pathologist. But, with increasing knowledge, there come to our attention. and we are able to recognize, the milder, the subtler, the reversible forms.

So, in schizophrenia, we have in recent years come to recognize, with the aid of therapies which alter in a useful way the natural course of the disease, mild, moderate, and severe forms. We have come, also, to recognize transitions from one of these forms to another.

As a mnemonic and heuristic device we may think of schizophrenia as being, at a given time, blatant, patent, or latent.

Blatant Variety

The blatant variety is the one which we clearly recall from medical school days and from our desultory visits to a state hospital. This variety is expressed in frank delusions, hallucinations, excitement or withdrawal, and in all sorts of regressive, destructive, including self-destructive. behavior. We are not concerned today with this stage of schizophrenia because it calls for a heroic injection of barbiturate or tranquillizer and a hurried trip to the hospital.

We are much more concerned here with the patent, or moderate, and latent, or mild, degrees of the disease. Over a period of recent years we have come to use the term *ambulatory schizo-phrenia* (Zilboorg) to cover those patients who are

able to get along in society although only in a marginal, poorly adjusted way and to use the term *pseudoneurotic schizophrenia* (Hoch) to cover those patients whose symptoms include numerous bodily, psychosomatic ones.

Symptoms Described

These symptoms are like those of the anxious, neurotic patient, but on further observation it is found that they cover a disorder in thinking which is one of the foundations of our modern understanding of the schizophrenic process. In short, if you really listen to the discourse of a schizophrenic patient, you will find that it makes no sense, that it is illogical, non-sequential, and even gibberish.

You will notice contradictions; you will sometimes even feel that the patient is not telling the truth; he may be unnecessarily detailed or circumstantial in his recital or he may use metaphors which you do not understand so that much of what he says is cryptic. If you listen to him on several occasions, he may present such different facets of personality that you will scarcely recognize him as the same individual.

Sometimes the moderately affected schizophrenic patient shows so much blocking of thought processes that it is difficult for him to get his ideas across. What he says is likely to sound hollow and insincere.

Salient Features

Some of the salient features of schizophrenic language and thought are these: 1. The subject is excessively concrete and literal: he is unable to make generalizations, general concepts, or assumptions. 2. The subject does not perceive in the usual way what is going on around him; he is likely to confuse the incidental and irrelevant with the meaningful. On looking at an inkblot to see if some figures have accidentally been formed,

^{*}Presented at the University of Texas Post Graduate School of Medicine, El Paso Division, May 25, 1958.

he is likely to attend to and concentrate on the white space instead of the inkblot or on a tiny, obscure detail instead of an obvious configuration of the blot. 3. The subject is unable to sort things or thoughts into logical categories, concepts and sequences. As a result of all this, his language fails in its primary role of communication and in its purpose of establishing the subject in his cultural pattern. 4. The subject is unable to remain in a given field, system, or "set" of thought. If you say, "This car will take you to Phoenix without refueling" he will reply, "but I don't want to go to Phoenix."

One Point of View

According to one point of view, notably that established on a firm foundation by the late Harry Stack Sullivan, the basic psychodynamics of a schizophrenic patient are these: 1. There is a system of defenses for building up a sense of self-esteem. 2. There is a system of defenses for the avoidance of being hurt, of having one's feelings hurt, by others. According to this concept, these defensive processes come first; disorganization of language and thought comes second. If we think of Freud as the pioneer student of the intrapsychic life, we are bound to think of Sullivan as the pioneer student of interpersonal relationships.

There is one problem that seems to recur over the years with ever greater persistence. This has to do with the fact that, in certain modes of language and thought and in certain responses to psychologic tests, it is difficult to distinguish the schizophrenic person from one with certain kinds of organic disease of the brain. So, the old question and one recently raised again is this, is there not a biochemical basis or substrate to the whole problem of schizophrenia?

Remarkable Remissions

The question is re-enforced when one considers the remarkable remissions sometimes produced by medical and physical means, notably by electroshock treatment. The question raises another one. Is it not likely that, in the foreseeable future, really satisfactory medical methods, of which the present tranquillizers and blood enzyme work are only a feeble premonition, will replace the present physical methods?

We mentioned earlier three varieties of schizophrenia: the blatant, the patent, and the latent. The blatant and patent have been described. By latent we mean a mild form or one which has subsided from a blatant stage to a stage of partial remission.

Psychotic Condition

For example, a woman was seen in a grossly psychotic condition characterized by delusional thinking, obvious hallucinations, and agitation. After an intensive course of shock treatment, her symptoms subsided so that she was able to resume her normal household tasks and usual interpersonal relationships. Later, she complained of backache. She was, at this time, literal and concrete in thought and language and there was still a mild feeling of "not getting through," of not communicating.

She was referred to an orthopedic surgeon who used a variety of measures including procaine block, for the relief of backache, but without result. Two or three electric shock treatments gave complete relief. The same sequence of events—backache, orthopedic treatment, psychiatric treatment—had to be repeated on subsequent occasions.

There was no reasonable doubt that the woman's backache was a psychosomatic symptom. She continues to make a fairly good adjustment to everyday life.

Disorders

In standard psychiatric practice we think not of schizophrenia (dementia praecox of Kraepelin) but of "the schizophrenias of Bleuler," a group of diseases whose principal connecting links, apart from any biochemical ones still unknown, are disorders of language and thought, disorders of perception, and inappropriateness or blunting of the emotions.

The disorders of language have to do with neologisms, condensations of two or more words. word mixtures known as word salad, and a lack of reasonable sequence or connection between one sentence and those before and after it.

It may require close listening usually, however, for only a few minutes before this lack of connection becomes evident, but once it does it is unmistakable.

Difference Noted

It should be remarked that the thinking disorder of a schizophrenic subject is not all like the defective thinking of a feebleminded person. An individual with a pronounced thinking disorder may demonstrate ability earning him a rating in the superior, or very superior, category of intelligence.

Some schizophrenics have a simple-minded and childish quality about their conversation which makes them difficult to distinguish from a mentally retarded individual. If one finds, though.

that such an individual has successfully completed 10 or 12 years of schooling at the usual age, mental retardation can be immediately ruled out.

If you will recall the conventional classification of the schizophrenias—simple, paranoid, catatonic, hebephrenic—you will see that we have been discussing mild stages before the full development of the characteristic symptoms which help to classify them into one of the four types.

The milder types usually fall into the simple or paranoid reaction groups. Both of these show, in addition to perceptual and thinking disorders, emotional inappropriateness.

The paranoid type is distinguished by suspicion and distrust of others and by paranoid attitudes that fall short of frank delusion.

Recapitulation

To recapitulate. We have suggested ways and means of recognizing the milder, more subtle, everyday varieties of schizophrenia.

- 1. The subject's language reflects the fact that his thought makes no sense.
- 2. The subject cannot really get through to you nor you to him (until after a favorable therapeutic outcome.)
- 3. The subject cannot make useful generalizations as brought out, for example, by his inability to draw general conclusion from a proverb.
- 4. The subject has a disorder in perception. He confuses relevant with irrelevant. He confuses figure and ground in an inkblot test. He is impressed

with the background of the Mona Lisa, not with the famous subject herself.

- 5. He is unable to sort things into categories. He may be unable to make the series of cabbage, carrot, potato, and meat into "vegetable" for the first three. He is more likely to say, "They are all foods."
- 6. He is unable to remain in a single field or "set" of thought. If you give him a simple metaphor, he takes it concretely and in no other way. But at the same time, he may use his own, private metaphors and abbreviated expressions comprehensible to him but not, at least not immediately, to us.
- 7. His interests and values are different from those of other people so that he does not respond to the same things in the same way. In short, he is found to be emotionally inappropriate.

Importance

What is the importance of recognizing these "mild" varieties of schizophrenia? The schizophrenic patients who masquerade as neurotic people are by no means few in number; indeed, they are remarkably numerous. If the usual forms of office psychotherapy should fail, a reevaluation is indicated. If further study is indicative of ambulatory or pseudoneurotic schizophrenia, a course of somatic treatment may set the patient off on a good start to a successful therapeutic result.

SOCIAL SECURITY SAYS: "It is common knowledge that most of us because of living costs, social standards, and economic misfortunes, do not set aside enough money or other assets during our working years to provide adequately for ourselves or our families when earned income is cut off by disability, old age, or death."

In Other Words: Social Security believes that "most of us" must depend upon the government in our "hour of need."

NOTE: For a concise but thorough description of some of the points brought out in this article, the reader is referred to a monograph edited by J. Kasanin, "Language and Thought in Schizophrenia," University of California Press, 1944.

Prenatal Iron Therapy

By ROBERT C. Evans, M.D., Phoenix

Recent studies indicate that the average female is in a precarious state of iron balance and that, although she may not show evidence of iron deficiency anemia, iron reserves may be slight or even nonexistent¹. Any increased iron demand, or any minor stress, therefore, results in prompt exhaustion of the iron reserve and the subsequent fall in circulating hemoglobin. A number of studies indicate that the normal female shows 12 to 13 grams per 100cc. of hemoglobin^{2,3}. In this section of the nation 10 to 12 grams is not uncommon.

Pregnancy represents one of the major physiologic demands for iron. If increased absorption and the conservation of iron due to cessation of menstruation can supply the fetal demand, the status of the initial iron reserve would not be an important determinant of the appearance of iron deficiency during pregnancy. It has been assumed that this is, in fact, the case⁴.

Iron Deficiency

If, however, the demand exceeds the initial available reserve iron plus that which can be absorbed, then iron deficiency appears and hemoglobin falls. A mere decrease in hemoglobin, however, is not per se, evidence of iron deficiency since increases in plasma volume occur particularly during the third trimester and a "dilution factor" averaging about 15 to 20 percent must be considered.

A 20 percent physiologic dilution would cause a hemoglobin of 12 grams per 100cc, to fall to about 10 grams per 100cc, and this value has been widely adopted as a "normal" during latter stages of pregnancy.

This field has been challenged by Holly who demonstrated low serum iron and elevated erythrocyte protoporphyrin values in pregnant women whose hemoglobin fell below 12 grams per 100cc. quite regardless, of the "dilution" factor⁵. It would seem, therefore, that iron deficiency does exist in pregnancy at hemoglobin values below 12 grams.

Regardless, however, of whether the 10 to 12 gram range represents a mild degree of iron deficiency anemia, another factor must be considered. If hemoglobin is 10 grams per 100cc. at delivery and rises to 12 grams per 100cc. within a few weeks after delivery, this represents simply an elimination of the "dilution" factor and no iron has been returned to the reserve. If, however, the woman delivers at 13 grams per 100cc. and has a hemoglobin of 13 grams per 100cc. post-natally after "dilution" is eliminated, then considerable iron has been placed in the "reserve." As Beutler⁶ has pointed out, reserve iron may be major factor in obviating abnormal fatigability and irritability in the female.

Vitamin supplements, calcium and iron are widely used as a part of the prenatal regimen in this country. Since Holly, Hamilton and others have presented statistical data pointing to the superiority of cobalt-iron over iron as prenatal medication, we administered a preparation of cobalt and iron fortified with a suitable vitamin supplement* to a series of pregnant women and determined peripheral blood values at appropriate times. A brief series of patients given vitamin and iron preparations was included for comparison.

Methods

Patients comprising this series were those presenting themselves at the charity clinic, St. Joseph's Hospital, Phoenix, Arizona. One hundred and thirty-four patients were seen on their initial prenatal visit between August, 1956 and June, 1957. Of these fifteen did not return. An attempt was made at the onset to alternately prescribe the cobalt-iron and other prenatal capsules. This was found impractical resulting in the small number of patients in the control series.

The cobalt-iron medication was prescribed in a dosage of one tablet three times daily; other medicaments used were given according to the recommended dosage of the manufacturer. Complete blood counts were done at the time of the patient's initial visit. A second blood count was done during pregnancy and a third was carried out approximately one month prior to delivery.

^{*}Roncovite Plus was furnished through the courtesy of Lloyd Brothers, Inc., Cincinnati, Ohio.

Since determinations made at times nearer to delivery than this have proved to be unreliable, data which did not meet this criteria were discarded (ten such cases). An additional blood count was performed three or four days after delivery and in some instances another was performed approximately six weeks later.

Hemoglobin determinations were done photoelectrically by the cyanmethemoglobin method; hematocrit anl erythrocyte counts were determined by standard methods. The determinations were those routinely done in the hospital laboratory.

Results

A total of 46 patients received cobalt-iron therapy, initiated during the first or second trimester. The distribution of initial and predelivery hemoglobin values is shown in Table 1. Approximately 57 percent of the patients were above 12 grams of hemoglobin when therapy was initiated, while 52 percent showed no iron deficiency themoglobin above 12 grams per 100cc.) at the last predelivery determination.

TABLE 1

Patients Receiving Therapy
During First or Second Trimester

Hemo-	Numberof Patients Initial Value		Percent		Pre- delivery Value		Percent		Post- partum Value		Percent	
globin Gms./ 100 cc.	No cobalt	Cobalt	No cobalt	Cobalt	No cobalt	Cobalt	No	Cobalt	No	Cobalt	No cobalt	Cobalt
7-7.9 8-8.9	0	0 2	iò	4.3	1 0	0 3	10	6.5	0	0		
9-9.9	$\frac{1}{2}$	0	20		1	2	10	4.3	1	0	10	
10-10.9 11-11.9	1	5 13	20 10	$\begin{array}{c} 10.9 \\ 28.2 \end{array}$	2 4	6 11	20 40	$\frac{13.0}{24.0}$	0	0	10	8.7
12-12.9	1	18	10	39.0	1	8	10	17.4	1	11	10	24.0
13-13.9	3	6	30	13.0	1	10	10	21.7	3	14	30	30.4
14-14.9 15-15.9	0	2		4.3	0 0	3		6.4	0	5		10.9
15-15.9	0	0			U	3	••	6.4	0	1		2.2

Moreover, 16 patients delivered with hemoglobin values of 13 grams per 100cc. or more. Results, therefore, were excellent as compared with the 20 percent of pregnant patients who usually show a fall in hemoglobin on ordinary iron therapy.

In our group of 10 patients receiving non-cobalt-containing iron-vitamin supplements, for example, only two of 10 patients delivered at values of 12 grams per 100cc. or better and one reached the 13 gram level.

43 Patients

A total of 43 patients received cobalt-iron therapy beginning in the third trimester. The distribu-

tion of initial and predelivery hemoglobin values is shown in Table 2. Twenty-four of these patients had hemoglobin values of 12 grams per 100cc. at the time therapy was initiated and 21 were above this level at the last predelivery determination.

TABLE 2

Patients Receiving Therapy
During Third Trimester

Hemo-	Numberof Patients Initial Value		Percent		Pre- delivery Value		Percent		Post- partum Value		Percent	
globin Gms./ 100 cc.	No cobalt	Cobalt	No cobalt	Cobalt	No cobalt	Cobalt	No	Cobalt	No cobalt	Cobalt	No cobalt	Cobalt
7-7.9	0	0			0	1		2.3	0	0		
8-8.9	0	2 2		4.7	0	0			0	0		
9-9.9	2	2	20	4.7	3	3	30	7.0	0	0		
10-10.9	1	4	10	9.3	3	7	30	16.2	0	1		2.3
11-11.9	3	11	30	26.0	2	11	20	26.0	0	2		4.7
12-12.9	3	13	30	30.0	2	11	20	26.0	0	1		2.3
13-13.9	1	5	10	11.7	0	7		16.2	0	7		16.2
14-14.9	0	6		14.0	0	2		4.7	0	2		4.7
15-15.9	0	0			0	1		2.3	0	0		

Moreover, ten of the group (23 percent) delivered at hemoglobin levels of 13 grams per 100cc. or more. In 10 patients receiving noncobalt supplements, initiated in the third trimester, only two delivered at hemoglobin levels of 12 grams per 100cc. or more.

Average MCHC values calculated from predelivery hematocrit and hemoglobin values showed 29.2 percent for the 89 cobalt-iron treated patients and 30.3 percent for those receiving iron-vitamin supplements.

Gastro-Intestinal Intolerance

Of the 89 patients receiving cobalt-iron therapy, gastro-intestinal intolerance appeared in five who were given other prenatal therapy, therefore, for short periods. One patient who had received Roncovite was transfused shortly after delivery. Her predelivery hemoglobin was 8.8 grams and the hematocrit was 28. This patient had lost 2.3 grams per 100cc. of hemoglobin during her pregnancy. One patient who had received noncobalt therapy was transfused after delivery. Her initial hemoglobin was 8.7 grams per 100cc, which had declined to 7.3 grams per 100cc, prior to delivery.

No significant toxic symptoms were seen which would be ascribed to the medication used.

As can be seen from the incompleteness of the postpartum section of the tables, many patients

did not return for their postpartum examination, especially those who sought medical attention late in their pregnancy,

Discussion

Our data indicates that prenatal iron supplementation is generally effective in maintaining hemoglobin levels during pregnancy. Actual hemoglobin increases, however, are not consistently found and it must be supposed that increased demand is the major factor. Therapy begun in the first or second trimester did not seem to provide advantages over its initiation at the beginning of the third trimester on an over-all basis. Fifty-two percent of those treated during the first and second trimesters showed predelivery hemoglobin values of 12 grams per 100cc. or more; 49 percent had similar values when therapy was not initiated until the third trimester.

On the other hand early therapy does possess advantages. Nearly 35 percent of those receiving cobalt-iron during the first or second trimester delivered with hemoglobin values of 13 grams or more as compared with 23 percent, on the same therapy, when treatment began in the third trimester.

Although our series is too small to give significant comparisons, it does indicate that when cobalt-iron treatment was compared with a limited group of patients receiving other iron-vitamin supplements, the former appeared to be superior. Thus, when treatment began in the first or second trimester, over half the cobalt-iron group delivered at the 12 gram level while only 20 percent reached this figure with other iron treatment. In the group where therapy began in the third trimester, results were essentially similar.

Summary and Conclusions

Iron supplementation appears to be desirable during pregnancy. Although the total number of patients developing anemia during pregnancy does not differ greatly when treatment is initiated in the early or late stages, early administration results in more patients with higher predelivery hemoglobin values. This is probably reflected in a return of additional iron to the "iron reserve" when the dilution factor is eliminated at the completion of the pregnancy.

Cobalt-iron administration, with vitamins, appears from this series to be an excellent agent for routine use in pregnancy. Hemoglobin values are well maintained and a high percentage of patients deliver with relatively high hemoglobin levels. In a limited comparison with other iron supplements, cobalt-iron appeared to be definitely superior.

No toxic effects of the medication were seen and gastro-intestinal intolerance did not appear to be greater than that usually seen with iron administration.

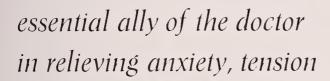
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Attend The Southwest Obstetrical and Gynecological Meeting in Phoenix November 14-15





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(1) Marangoni, B. A.: Am. Pract. & Digest Treat. 8:1959, 1957.

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Southwest Blood Banks, Inc. The First Fifteen Years — 1943-1958

By Louis G. Jekel, M.D., Phoenix

Southwest Blood Banks, Inc., while not an early pioneer in the field of blood banking, is, nevertheless, no Johnny-Come-Lately. It has been a highly successful organization and at this time is celebrating its 15th anniversary. That event prompts the recording of the story of the organization in the article here presented.

With the outbreak of the war in 1941 the need for a blood bank was felt by a great many communities. In Phoenix the idea was sparked by Dr. Louis B. Baldwin. The need for a blood bank at that time, he said, was acute because of the size of the community, the difficulty of obtaining blood and plasma in adequate amounts on short notice, and the need for plasma for military as well as civilian hospitals.

Under the prodding of Dr. Baldwin and a few others the Maricopa County Medical Society voted to sponsor such a blood bank. Articles of Incorporation were filed on September 17, 1943. Money was donated by private individuals and business concerns. Civic groups gave funds obtained through benefit functions of various sorts. The United War Fund contributed. The Maricopa County government deposited a sum paying in advance for blood and plasma for County patients.

Building Project

Building materials and construction labor were donated for the building project. Quarters were thus prepared at 710 E. Adams Street in space provided rent-free by the Social Service Center. Lawyers, accountants, and others provided highly specialized services without charge. Before and after opening day on October 4, 1943 a voluntary staff of about 70 persons, nearly all women, was kept busy.

Their duties included making donor appointments, registering donors, operating the switchboard, typing, bookkeeping, acting as hostesses and nurse's aides, transporting the blood, rounding up, registering, and blood-typing individuals who could not be donors, relieving the resident nurse, and providing home-made cookies and beverages for the donors. It was a complete community project from the start.

The permanent staff was composed of a supervisor (a graduate nurse), another nurse who lived on the premises, a full-time laboratory technician, a full-time physician (a clinical pathologist), and a part-time physician who supervised the drawing of blood two afternoons a week. Most of these persons served without pay.

The blood bank dealt directly with the hospital and not with the patient. A charge was made of \$7.50 for blood and \$10.00 for plasma. plus a donor. A temporary charge of \$22.50 was made to stimulate replacement of blood. This amount was refunded when the blood was replaced by the donor.

Value Of Plasma

Hope was expressed at the time that physicians would increasingly recognize the value of plasma in adequate amounts for surgical shock, acute pancreatitis, sunstroke, intestinal obstruction, the toxemia and shock of many infections, nephrosis, and post-operative pulmonary edema. It was pointed out that no civilian defense program or emergency catastrophe program is complete without a blood bank in operation. It was also stressed at the time that the blood bank presents many opportunities for research.

With that background the Salt River Valley Blood Bank was opened for business on October 4, 1943. It was operated under the auspices of the Maricopa County Medical Society. The governing body was the Executive Committee, a group of seven persons. Four of the members of the committee were members of the medical society who were elected by the society, one of these being the president of the medical society. This group of four chose three other members one of whom was a member of the Women's Auxiliary to the medical society, one a clinical pathologist, and the other an attorney. It is thus seen that the organization was completely under the control of the medical society at that time.

Amazing Growth

From that small beginning the organization grew in an amazing manner. Soon sub-depots



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were established in Mesa, Yuma. Prescott, and the Fort Whipple Hospital. Air service was established to these points and others through the Civil Air Patrol and independent aviators. By 1949 after five years of growth the output had expanded from 200 to 600 pints a month. Blood and plasma were furnished without charge on a two-for-one replacement basis. In five years more than 17,500 pints of blood were furnished to patients.

In 1949, through the co-operation and with the facilities of the Salt River Valley Blood Bank, the Salt River Valley Breast Milk Bank was organized with Dr. John Kruglick as its technical director. Its functions were to draw, pasteurize, freeze, and store human milk in 4 and 8 ounce jars for distribution to infants requiring it. This Breast Milk Bank is still in operation.

A Bone Bank was likewise set up through the facilities of the Salt River Valley Blood Bank, largely through the efforts of Drs. James Lytton-Smith and Ronald Haines. This organization likewise is still in operation.

As time went on and the facilities of the blood bank expanded it was only natural that other communities should ask for help. Thus, in 1950 service was extended from the bank in Phoenix to Brawley, California, and in 1951 to Las Vegas, Nevada. In each of these cities a sub-depot of the Salt River Valley Blood Bank was established.

El Paso Participates

It was in 1950 in a different manner, however, that the tremendous expansion of the organization began. In that year the County Medical Society in El Paso requested the Salt River Valley Blood Bank to help establish a bank in the border city. This was done, In 1951 a similar request came from the Medical Society at Albuquerque and a blood bank was established in the New Mexico city. In 1951 also, the Harris County Medical Society in Houston made a similar request and placed \$25,000 at the disposal of the organization to help the new bank get started.

By that time (1951) the organization had attained such size and geographical breadth that the articles of incorporation were amended and a new name was given, a name which would describe more adequately the territory it served: The Southwest Blood Banks, Incorporated, Each individual bank retained the name of its city: thus the old Salt River Valley Blood Bank became the Southwest Blood Bank of Phoenix, and the El Paso Blood Bank became the Southwest Blood Bank of El Paso.

As the organization continued to grow various communities looked to it for help in establishing blood banks. In each case the local County Medical Society would make the request to join the organization, and the Southwest Blood Banks, Inc. would assist in the establishment of a bank. Thus the following cities were brought into the system: San Antonio, where the medical society put up \$15,000 (this bank extended its services to San Angelo in 1953); Lubbock (1952); Harlingen (1952); Lafayette, Louisiana (1953) which bank was transferred to Alexandria in 1957; Little Rock, Arkansas (1955); Meridian, Mississippi (1955); Casper, Wyoming (1956) which bank was transferred to Cheyenne in 1958; and Reno, Nevada (1956).

Outstanding Leaders

From the very inception of the idea of a blood bank in Phoenix two of the outstanding leaders of the organization were Dr. and Mrs. Louis B. Baldwin, As stated above, Dr. Baldwin stimulated the medical society into taking action and was a leader in thinking and doing throughout the early days.

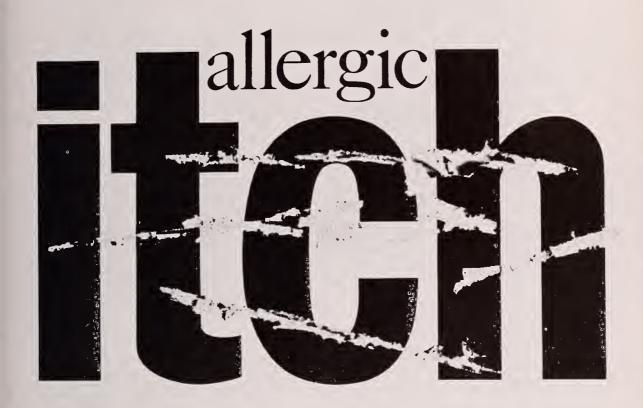
Mrs. Baldwin (Katherine to her many friends) was a leader in the campaign for organization and when the bank opened she became the first supervisor. She served in that capacity, nursing the baby bank along, for nearly five years, and except for about a year of that time she served without pay. Her contributions to the organization cannot be praised too highly.

When Mrs. Baldwin retired in 1947 W. Quinn Jordan became Executive Director of the Salt River Valley Blood Bank. In the same year he was instrumental in organizing the American Association of Blood Banks. He served at one time as treasurer of the latter organization and still is on some of its important boards and committees. By 1949 this group had 400 Blood Bank members; it now has 900. Mr. Jordan's part in the founding and operation of this association is a source of pride to the various members of the Southwest Blood Banks.

Assisting Mr. Jordan in the management of the Southwest Blood Banks is Mr. Kenneth Kelley, the Assistant Executive Director since 1951. Mr. Kelley's 15 years experience with the United States Army and the American Red Cross provided a background of great value to him in performing his duties with the blood bank.

Medical Director

Southwest Blood Banks is considered fortunate, indeed, in having as its Medical Director Dr.



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John B. Alsever, For over 20 years Dr. Alsever has been a leading authority on the clinical use of blood and its derivatives and on the technical aspects of operating blood banks. During these years he has been associated with the Syracuse University Medical School, the American Red Cross, the Federal Civil Defense Administration, and the United States Public Health Service. In May, 1955, he became the first full-time medical director of the Southwest Blood Banks, Inc., in which position he is responsible for the technical, scientific, experimental, educational, research, and laboratory work of the entire system of blood banks, and as part of his duties he visits all banks in the system at frequent intervals to determine that requirements of the National Institutes of Health are being met.

The record of this institution is presented here as the story of an idea, some of the people behind the idea, and the result of that combination. The Southwest Blood Banks, Inc. has grown from a small local blood bank in Phoenix, which in 1943 served a population of little over 100,000 and distributed only about 200 pints of blood and plasma a month, to become an organization which today serves from the Phoenix unit alone some 800,000 persons and distributes about 2,000 pints a month, and which throughout the entire system serves an area comprising about one-sixth of the total land area of the continental United States and a population of some 12,000,000 persons, distributing to them 13,000 pints of blood and plasma a month.

Ideas plus people plus hard work lead to success,

The Southwest Blood Banks, Incorporated has proved to be a success. On its 15th anniversary we salute this fine organization and offer our congratulations.

Otitis Media in Childhood

By W. E. LOCKHART, M.D., Alpine, Texas

Acute respiratory infection in children is the most frequent medical problem in general practice, and the cardinal procedure and guide in the management of these conditions is inspection of the ear-drums. If such inspection indicates that otitis media is not present—recognizing that a majority of respiratory infection in childhood is viral in etiology—a conservative management is indicated, usually without the use of antibiotics.

On the other hand, if otitis media is present, a serious emergency exists, and treatment may be both with antibiotics, analgesics and—more often than is being done at the present time—myringotomy. If the ear-drum is acutely inflamed and is bulging under pressure, proper myringotomy should be done and antibiotics of proper selection and dosage should be administered without delay during the "golden period" between the onset of infection and the occurrence of permanent destruction in some degree of the hearing apparatus.

Irreparable Damage

Even neglected appendicitis treated today with modern surgery and antibiotics nearly always results in a cure, but otitis media neglected for only a few hours may result in irreparable damage. Parents should be educated to rush the child with earache to the doctor immediately—even in the small hours of the night.

Otologists see a large proportion of neglected or antibiotic-resistant infections. In general practice many of the infections "respond like magic" and many others finally respond more gradually to adequate dosage of proper antibiotics. Pus in a fixed cavity under pressure should be evacuated surgically, recognizing that the vascular supply of the mucous membrane of the middle ear is not abundant even under normal conditions and is less so under pressure, and recognizing also that a high percentage of infections are viral in etiology or are due to bacteria that resist antibiotics.

Hemophilus Influenza

Mortimer and Watterson (Pediatrics, Vol. 17, No. 3, March, 1956) reported that cultures from the middle ear under the age of four years show hemophilus influenzae in approximately one-fourth of cases. This is significant because, although faced with a present emergency—in the absence of sensitivity to penicillin by the patient—penicillin and streptomycin by intramuscular injection is the antibiotic combination of choice, as soon as resistance to this combination is evident it is wise to add chloromycetin, to which hemophilus influenzae is sensitive. Even when the primary organism is viral, hemophilus influenzae may be present as a secondary invader.

Spearman (Southern Medical Journal, Volume 49, Number 3, March, 1956) points out that mastoiditis is not as rare—since the advent of antibiotics—as is generally believed. Many cases are being overlooked. The general practitioner should follow his cases of otitis media carefully and make certain that recovery has been complete. Persisting evidence of infection usually indicates mastoiditis, and the patient should be referred to an otologist for possible surgical removal of necrotic bone of mastoiditis, without which procedure healing may be uncertain and delayed.



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OCTOBER, 1958 579

A Valuable Sign of Intra-Partum Fetal Distress

By JACK CURRY REDMAN, M.D., A.A.G.P., Albuquerque

Frequent auscultation of the fetal heart tones is an essential part of the management of labor. Alteration of the fetal heart rate or of the quality of the fetal heart tones should alert the delivery room personnel to the possibility of developing or existing fetal distress, Increased movement of the baby may be an accompanying sign, or it may be the only early sign. The early recognition of fetal distress is imperative in order that the physician may take those steps necessary to assure a safe delivery of a live baby.

The causes of fetal distress are multiple, being of both fetal and maternal origin. Obviously maternal complications which lead to fetal anoxia must be treated promptly. In these cases there is usually not much doubt that fetal distress is present. The most common fetal cause of distress is compression of the umbilical cord, whether it be by a knot or by being abnormally wound about the baby's neck or body. The purpose of this paper is to describe a valuable additional sign which may be sought during the first and early second stages of every labor, and which, if positive, indicates the presence of fetal distress.

Cervical Dilatation

At our hospitals we determine cervical dilatation during labor by means of vaginal examination preceded by vaginal instillation of an antiseptic solution. For a number of years this observer has noted that, following the burbling sound of the antiseptic—air instillation, the great majority of babies "jump". This, in all probability, represents a Moro-type reflex caused by the sudden noise.

Also noted was the fact that at times of obvious fetal distress this fetal "jump" reaction was not present. On numerous occasions the "jump" reaction, previously present, disappeared, usually at the end of the first stage or during the early second stage. Many times, alteration of the fetal heart rate or tones, indicative of distress, did not occur until minutes later. At the time of delivery knots of loops in the cord were almost invariably found.

Easy To Perform

The test is easy to perform. A sterile bulb syringe one-third full of antiseptic solution is inserted two inches into the vagina of the woman in labor. The air and antiseptic solution in the syringe are expelled so that a burbling sound is produced. Inspection and palpation of the mother's abdomen reveals a fetal "jump" if distress is not present. Absence of the fetal "jump" reaction constitutes a positive sign of distress.

The fetal "jump" reaction may be elicited, normally, in all presentations of the fetus during the first stage of labor, and until the presenting part is at station plus-2 during the second stage. It goes without saying that a positive sign should be integrated with the total clinical picture, including the other signs of distress. Then, if necessary, steps may be taken to shorten the second stage of labor; regional anesthesia may be employed instead of general anesthesia; oxygen administration to the mother may be begun. Any one, or all, of these procedures might then be responsible for averting a fetal disaster.

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El Paso Physician Speaks At New Mexico Meeting

Dr. W. Compere Basom of El Paso was the principal speaker at the regular meeting of the Southwestern New Mexico Medical Society at Deming Sept. 10. Dr. Basom spoke on "Bone Growth, an Aid in the Treatment of Fractures in Children."

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 Individual Case Reports to Medical Dept. Pfear Laboratories. Dept., Pfizer Laboratories,

PFIZER LABORATORIES (Pfizer) Division, Chas Pfizer & Co., Inc. Brooklyn 6, New York

OCTOBER, 1958

Volumes on Common Functional Disorders And Human Parasitology Are Reviewed

A PRIMER ON COMMON FUNCTIONAL DISORDERS, by Jack W. Fleming, M.D., illustrated by Jerry Robinson, published by Little, Brown Co., Boston, Mass. Dated 1958, price \$5.00.

Dr. Fleming has taken his years of office and hospital experience with the patients that present themselves for diagnosis and given as a "first" in the diagnosis, management and understanding of the psychosomatic or psycho-envirosomatic disabled.

The doctor-patient relationship must recognize three qualities. (1) That the symptoms of the functional illness are bonafide, (2) that the mechanisms of internal milieu are disturbed in their physiology, and (3) that dynamic forces are at bay and must be recognized by the physician.

The spectra of psychosomatic illnesses must include diagnosis and management on modern concepts of medicine. There is no irresolute definition between the psyche and the soma, nor can more time be applied to patient's emotional bankruptcy than to disturbed mind-body physiology and equilibrium.

Excellent Illustrations

There are a number of excellent illustrations within the bounds of the book to explain to the sensitive patient the factual, medical and philosophical background of functional illness. These include headache, menopausal syndrome, allergy, back ache, irritable gastro-intestinal tract, hyperventilation syndrome and other psychogenic disease of emotional or neurogenic imbalance.

The ultimate goal of the practitioner of medicine is to go beyond the concept of specialty referral, indifference, and disinterest in the emotionally upset patient. Successive stages of therapy must be recognized, which Dr. Fleming describes as the "level of management." The first level is satisfactory history and physical examination, with necessary laboratory studies.

In turn, the doctor furnishes explanation and demonstrates the mechanisms of the symptoms. The second level of interview is proceeded on by the physician in terms of orientation of the symptoms of the patient to the stress and the emotional response of the patient.

The final, or third level, is therapeutic and incorporates confession, ventilation and psychiatric interview, which penetrates the psyche beyond the attitude of the patient, who states: Now I know why I am sick, but what do I do when I have an attack?

Great Skill

Great skill and sensible organization has developed this primer on common functional disorders seen in all physicians' offices. I betieve that each physician will require such an addition to his personal library for the interesting reading and for the knowledge to be gained in the correct application of your office and hospital time.

Jack C. Postlewaite, M. D. 1501 Arizona Street

A GUIDE TO HUMAN PARASITOLOGY.

By Blacklock and Southwell, revised by T. H. Davey, O.B.E., M.D. Sixth Edition. Cloth, 222 pp., with 3 colored plates and 119 illustrations. The Williams & Wilkins Co., Baltimore, exclusive U.S. agents, 1958, \$7.00

This very readable, compact and well-illustrated little book covers the geographical distribution, habitats, life cycles and, especially the techniques and descriptive data necessary to the finding and identification of those parasites with which physicians the world over are concerned. It only summarizes the clinical aspects of the disease produced by each parasite, and outlines the preventive medicine applicable. It covers the field completely, from spirochetes through nematodes. Dr. Davey is Professor of Tropical Hygiene at the School of Tropical Medicine of the University of Liverpool, and Director of the Sir Alfred Jones Laboratory, Freetown, Sierra Leon, West Africa.

Essential Guide

The book excels in teaching the untrained the processing of feces and other source materials with the simplest equipment, and the differentiation of a particular parasite from similar objects, using unusually clear descriptive writing as well as illustrations and comparison tables. A guide such as this is essential to any physician who undertakes his own blood smear and fecal examinations for parasites, or who would teach or supervise his technical assistant, and I know of no other as practical.

T. Sterling Martin 1501 Arizona Street





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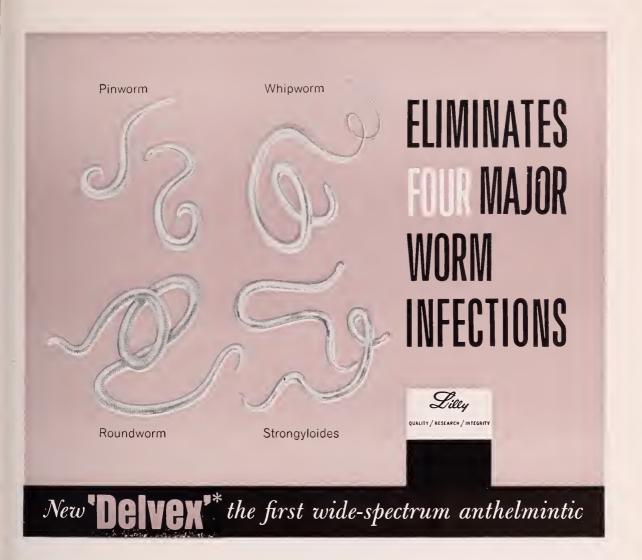
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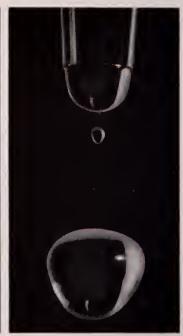
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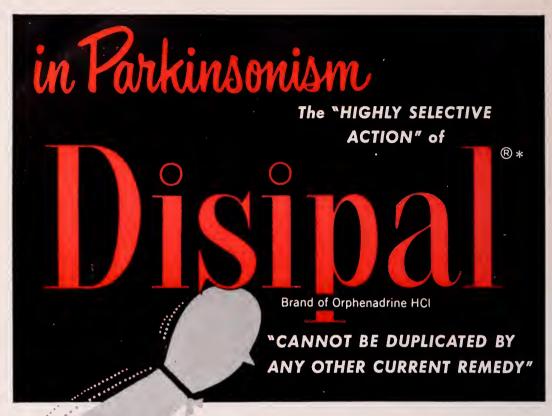
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Doshay, L.J., and Constable, K.: Treatment of Paralysis Agitans with Orphenadrine (Disipal) Hydrochloride: Results in One Hundred Seventy-Six Cases, J.A.M.A. 163:1352 (Apr. 13) 1957.

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Finch, J.W.: Clinical Trial of Orphenadrine (Disipal) in Skeletal Muscle Disorders. Scientific Exhibit at Mississippi Valley Medical Society Meeting, St. Louis, Missouri, Sept. 3-5, 1957.



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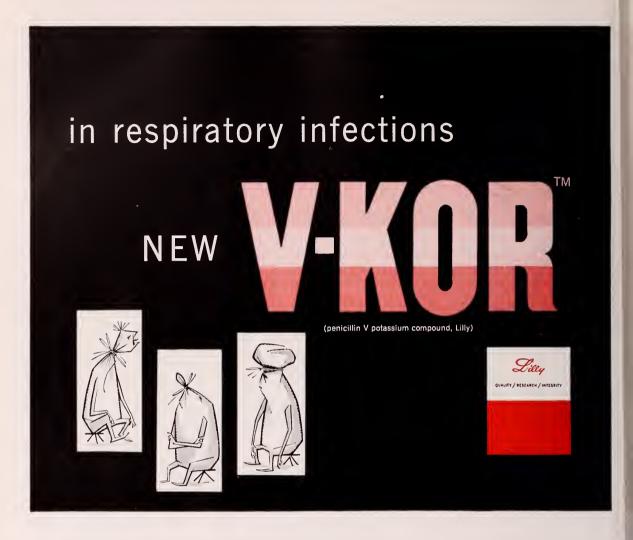
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NOVEMBER, 1958

No. 11

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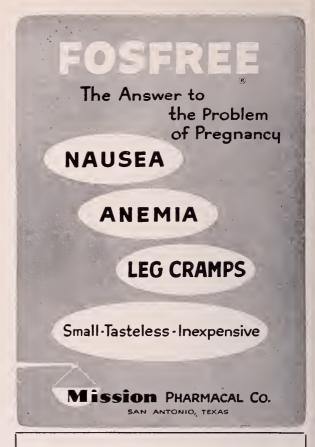
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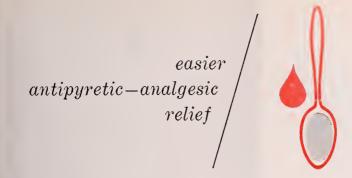
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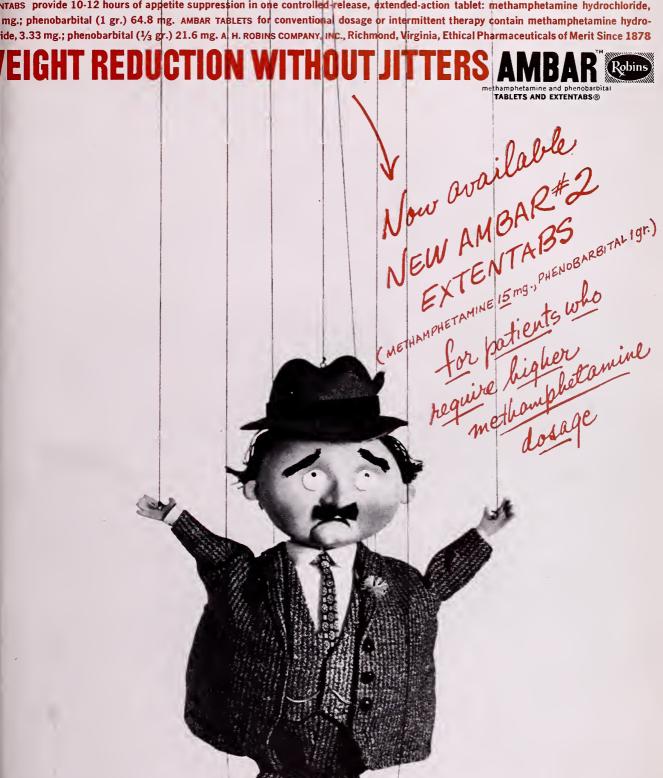
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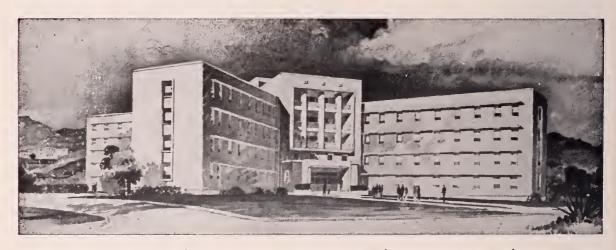
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1. Shane, S. J., Krzyski, T. K., and Copp. S. E.:

Canad. M.A.J. 77:600 (Sept. 15) 1957



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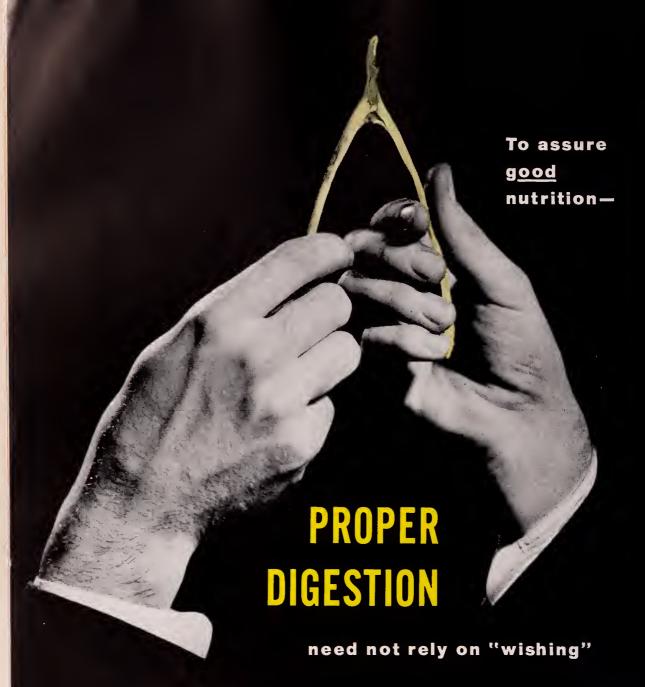
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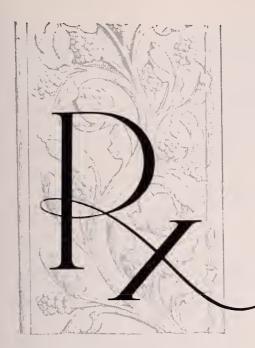
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SOUTHWESTERN MEDICINE

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VOL. XXXIX

NOVEMBER, 1958

No. 11

Acute Coronary Occlusion Surgical Treatment

By Jack A. Bernard, M.D., El Paso

The efficacy of the surgical treatment of coronary artery disease is undecided. For example, the value of the present popular internal-mammary-artery ligation is extremely controversial and has brought forth a host of criticisms as well as a number of advocates. A brief review of the various surgical procedures is presented.

The surgical treatment may be divided into the following:

- 1. Those that relieve anginal pain.
- **2.** Those that improve the circulation and thereby reduce myocardial ischemia thus reducing anginal pain.
- **3.** Miscellaneous surgery; such as the surgical excision of ventricular aneurysm, thoracotomy and cardiac massage for acute myocardial infarction, and finally thyroidectomy to reduce body metabolism.

Relief of Anginal Pain

As early as 1899 sympathectomy was proposed for angina pectoris. Sensory denervation of the heart may be carried out by paravertebral chemical block, posterior rhizotomy or by cervicothoracic ganglionectomy. Briefly, all these yield relief in over 75% of the cases with very low mortality rates, low recurrence rates, and tolerable complications. There is no proof of improvement of prognosis (Hellerstein).

CURRENT THERAPY

Procedures To Improve Myocardial Circulation

To improve the circulation and reduce the ischemia in myocardial infarction the following procedures are under study: the internalmammary-artery ligation, the Beck I operation, and endarterectomy.

Ligation of the internal mammary artery is reported to be effective in 60 per cent or more of the cases (such effectiveness is questioned by many). The procedure has been used alone by some with the idea of doing a more extensive operation at a later date. Some use it in combination with pericardial poudrage.

Its value is extremely difficult to evaluate and highly controversial and many believe it to be of absolutely no value. In its defense, it is simple with practically no mortality and does not prevent further surgical procedures at a later date. Complications include hypotension and pneumothorax.

Beck I Operation

The Beck I operation consists of applying coarsely ground asbestos to the surface of the heart producing a mild inflammatory reaction and the mediastinal fat is then brought into contact to the heart so that it can act as a graft. (There is a Beck II which is a procedure associated with the high mortality). By the Beck I procedure, the inflammation is said to result in the production of intercoronary anastomoses from the pericardium to the myocardium.

Brofman is enthusiastic about this procedure and reported in their last 100 cases that they had

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only one death and that was a patient who suffered an occlusion just prior to his being discharged from the hospital.

Contraindications include acute myocardial infarction or impending infarction, the operation being withheld for at least four to six months although the procedure is recommended early in the course of the disease.

Cardiac enlargement and congestive failure are relative contraindications. Brogman indicates the overall mortality to be between five and ten percent but believes this can be reduced by careful selection of patients and improvement in management. He reports relief in 80 to 90% of the patients, 45% being completely free of pain whereas another 45% were alleviated.

Endarterectomy

As to endarterectomy for coronary artery disease, Dr. Bailey points out that over 90% of the patients under 40 years of age with angina pectoris present segmental disease. Schlessinger found that 69% of the coronary occlusions occur in the main branches of the coronary arteries.

The importance of these findings is evident when it is realized that it is difficult to remove the atheromatous disease from more than a short segment at a time. It is postulated that the time may become when more extensive procedures may be carried out. It is also postulated that in the future the operation may be done within a few hours of an acute coronary occlusion in order to remove a fresh thrombus along with the atheromotous tissue.

Surgical Excision of Ventricular Aneurysm

Cooley and others indicate that surgical excision

of the sac should be considered in patients with ventricular aneurysm following a myocardial infarction, particularly if cardiac function is impaired. An aneurysm is suspected when there is a persistent ST segment change in the precordial leads and the aneurysm is confirmed by radiological procedures. With excision of the aneurysm by temporary cardiopulmonary bypass by the use of a pump oxygenator they feel such patients have an excellent chance of getting a good functioning myocardium.

Acute Myocardial Infarction

Finally, successful resuscitations by thoracotomy, cardiac massage and electric defibrillation have been reported in patients with acute myocardial infarction in whom ventricular fibrillation developed. Indications are not quite clear as to which patients are candidates for such procedure but in such cases in which this has been carried out the prognosis has been favorable.

Thyroidectomy

In passing, Blumgart has advocated thyroidectomy to provide relief in patients with angina pectoris and reports its effectiveness in 60 to 75 per cent of the patients.

Conclusion

Thus it has been our purpose to bring together these various surgical procedures which have been described in the treatment of coronary artery disease. Healthy skepticism, criticism and contradictory discussions should not deter those interested in continuing such studies.

SOCIAL SECURITY SAYS: "A woman who becomes entitled to benefits based on her own earnings and also the wife's benefits on the earnings of her husband would receive no more than the larger of the two amounts. A child who becomes entitled to child's benefits based on earnings of both his father and mother would not receive both payments."

In Other Words: Double social security taxes paid by one family do not produce benefits for each member paying the taxes. A part of the taxes go to "charity."

THE PRESIDENT'S COLUMN

Write, Doctor.

By Louis G. Jekel, M.D., Phoenix

In this, my last President's Column, I wish to make a plea to the doctors of the area to contribute more writings to their local and regional

medical journals.



Dr. Louis G. Jekel

We in the Southwest have interests, both medical and non-medical, which at times are somewhat different from those of the people of other areas. Although some of our material, because of its regional flavor, may not appeal to the editor of a national journal, it might be acceptable for publi-

cation in a journal such as Southwestern Medicine.

What should you write? Write what you want to write. Roughly subjects may be grouped into scientific and non-scientific.

The scientific papers might be about laboratory or clinical research, or case reports. Few of us, it is true, have much opportunity for laboratory research although there is some.

Clinical Research

Every practicing physician, on the other hand, has opportunities to conduct clinical research. As a matter of fact every one of us should be doing so at all times.

Many questions come to mind about patients and their problems, questions which often do not have ready answers. Yet you, through observations, tests, measurements, and deductions may help to solve these problems. Keep good records and accumulate data and sometimes a scientific report is the automatic outcome.

All of us occasionally see unusual cases or unexpected response of patients to therapy. Many of these cases would be of interest to your fellow practitioners and should be reported.

The local and regional journals need scientific papers. You can help fill this need.

Readers of medical journals also enjoy nonscientific material. Economic, legal, and political subjects as they relate to the practice of medicine are certainly very popular now. Some of our members have good thoughts on these matters and they should at times be brought to the attention of our readers.

History of Medicine

The history of medicine is interesting to most doctors. An especially unworked field is that of the history of medicine in the Southwest among the Indian tribes, and also among white men from the time of their arrival more than 400 years ago up to modern times. There are among us doctors who have as a hobby the study of the history of medicine. They can give us some really good articles on the subject.

Medical biography also interests most doctors. We have members who have had personal acquaintance with some of our pioneer physicians. As a matter of fact, we have members now who were pioneers themselves. From these men we might get either biographical or, better still, autobiographical material. Those of us who are greatly interested in the Southwest, and in medical history and biography—and that includes most of us —would be happy to have such articles appear in our local and regional medical journals.

And I know that there are many of the readers of this journal who would be able to write such articles. Your editor would be happy to receive them.

MEETINGS

Talk on Atomic Explosion At Carlsbad Is Scheduled

A talk on the forthcoming underground atomic explosion in the salt beds near Carlsbad, New Mexico, will be a feature of the Southern New Mexico clinical meeting in Artesia, Nov. 22 and 23.

The talk will be given by Gerald W. Johnson, test division leader for the University of California Radiation Laboratory at Livermore, Calif. The explosion is scheduled for mid-1959. It will be given at 7:30 p. m. Nov. 22 in the Veterans Building.

The night meeting will follow the semi-annual New Mexico House of Delegates meeting earlier in the day and will precede the one-day clinical meeting on Nov. 23. Credit of six hours in Category I of the American Academy of General Practice will be given those attending the clinical meeting. The program is sponsored by the Eddy County Medical Society and is as follows:

- 8:00 a.m. "PROBLEMS OF RADIATION HAZARDS" Dr. Omar Legant, Albuquerque.
- 8:30 a.m. "RECENT CHANGES IN THE TREATMENT OF CANCER OF THE BREAST"

 Dr. R. C. Derbyshire, Santa Fe.
- 9:00 a.m. "MANAGEMENT OF RESPIRA-TORY ALLERGIES" Dr. George Richardson, Roswell.
- 9:30 a.m. "LUPUS, SKIN CANCER AND THE SOUTHWESTERN SUN" Dr. H. D. Garrett, El Paso.
- 10:00 a.m. COFFEE BREAK.
- 10:30 a.m. "TREATMENT OF VAGINAL INFECTIONS"

 Dr. S. K. Starcke, Carlsbad.
- 11:00 a.m. "STEROIDS IN GERIATRIC PRACTICE"

 Dr. C. M. Kemper, Albuquerque.

11:30 a.m. "HYPNOSIS, USES AND LIMITATIONS"

Dr. C. P. Bunch, Artesia.

12:00 NOON

- 2:00 p.m. "MYOCARDIAL INFARCTION, A FIVE-YEAR SERIES"
 Dr. T. E. Hauser, Carlsbad.
- 2:30 p.m. "THE MANAGEMENT OF THE PATIENT WITH MULTIPLE INJURIES"

Dr. Louis F. Hamilton, Moderator, Artesia.

Dr. Albert J. Fisher, Albuquerque Dr. Earl B. Flanagan, Carlsbad. Dr. Sol Heinemann, Carlsbad. Dr. R. W. McIntire, Carlsbad.

Dr. Rupert H. Pate, Carlsbad.

AMA Public Relations Specialist To Speak

Aubrey D. Gates, director of the field service division of the American Medical Association, will be the principal speaker at the public relations meeting scheduled by the New Mexico Medical Society for 3 to 5 p. m. Nov. 21 in Artesia. Dr. Sol Heinemann of Carlsbad, chairman of the state society's public relations committee, is in charge of the program.

The meeting will be held in connection with the semi-annual House of Delegates session of the New Mexico Medical Society Nov. 22 and with the Southeastern New Mexico clinical meeting Nov. 23.

Mr. Gates will speak on "Major Problems Facing Medicine in the Next 10 Years." Other speakers on the program and their subjects will be Dr. Heinemann, who will open the program with a showing of the AMA film, "Medicine Man"; Dr. Michel Pijoan, Espanola, "Food Fadism"; Bob Reid of Mott, Reid and McFall, El Paso public relations firm serving as consultants for the New Mexico Medical Society, "Whom Do You Know".

A discussion period will follow.

Any doctor interested or active in public relations is invited, according to Ralph Marshall, executive secretary of the state society.

ORTHOPAEDIC SURGERY NOTES

Report of the 19th Annual Meeting of The American Fracture Association

This meeting, held in Oklahoma City, was a distinct success. The scientific papers were excellent, the program was packed and intense and a lot was gained by those attending the meeting.

Dr. Earl D. McBride, annual meeting chairman, Dr. Russell D. Harris, program chairman and Dr. Irwin H. Brown, postgraduate fracture program chairman are to be congratulated for their excellent work.

The meeting was preceded by a postgraduate course in fractures given by the University of Oklahoma School of Medicine Postgraduate Division. This program consisted of the following speakers and subjects.

Dr. Harold J. Meier, Coldwater, Mich., "Critical Analysis of the Disability in Fractures of the Os Calcis."

Dr. Don H. O'Donoghue, Oklahoma City, "Ligament Injuries of the Knee."

Dr. David R. Brown, Oklahoma City, "The Common Pitfalls Encountered in the Treatment of Fractures and Their Avoidance."

Dr. Milton C. Cobey, Washington, "The Use of Materials in Promotion of Fracture Healing."

Dr. J. Vernon Luck, Los Angeles, "Traumatic Arthrofibrosis; Reactions of Joints to Acute Trauma".

Dr. Charles M. Swindler, Ogden, Utah, "Pathologic Fractures in Children".

Dr. Jack Wickstrom, New Orleans, "Prevention of Complications in Colles' Fracture."

Dr. Richard Payne, Oklahoma City, "Metabolism of Fracture Healing".

Many favorable comments were heard regards this program.

The American Fracture Association Meeting program consisted of the following speakers and papers:

Dr. Jack L. Richardson, Tulsa, "The Treatment of Intertrochanteric Fractures of the Femur by Means of Well Leg Traction".

Dr. John R. Stacy, Oklahoma City, "Fractures of the Proximal Diaphysis of the Femur."

Dr. J. Vernon Luck, Los Angeles, "Pathological Fractures".

Dr. H. D. Burke, Dixon, Illinois, "Intra-Extra Oral Management of Mandibular Fractures, with Emphasis on Condylar Fractures".

Round table luncheons were held as usual. The speakers were Dr. Duncan McKeever, Dr. Charles M. Swindler, Dr. Harold J. Meier, Dr. J. Otto Lottes, Dr. Walter T. Henderson, Dr. Robert A. Murray, Dr. A. H. Diehr, and Dr. Roger Anderson.

Fractures in the aged, fat embolism with fractures, os calcis fractures, tibia, lumbar spine, pelvis, wrist fractures and treatment of fractures in general were subjects covered.

More speakers and papers were presented. They were:

Dr. William Deyerle, Richmond, "Absolute Fixation of Hip Fractures."

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Dr. J. Otto Lottes, St. Louis, "Intramedullary Nailing of Fractures of the Tibia: Procedure, Errors in Technique and Complications".

Dr. Jack Wickstrom, New Orleans, "Fractures of the Tibia: Role of Internal Fixation".

Dr. William H. Harsha, Oklahoma City, "Problem Fractures of the Ankle".

Dr. C. Philip Fox and Dr. Virgil McCarty led discussion periods in which anyone could discuss his problem cases and obtain helpful advice in management.

The following papers were presented in later sessions:

Dr. Frank A. Lowe, San Rafael, Calif., "Fractures about the Elbow in Children".

Dr. DeWitt Stanford, Orlando, Fla., "Comminuted Fractures of the Distal End of the Radius".

Dr. Robert A. Murray, Temple, Texas, "Care of the Injured Hand".

Dr. Leslie V. Rush, Meridian, Miss., "Dynamics of Fixation of Fragments: Methods of Dealing with Oblique Fractures in Short Fragments".

Dr. John T. Bate, Louisville, "Use of New Instrument for Cutting Small Split-Thickness Skin Grafts".

Dr. Richard H. Burgtorf, Shattuck, Okla., "Fracture-Dislocation of the Hip".

Dr. A. H. Diehr, St. Louis, "Complicated Fractures of the Femoral Shaft."

Dr. Louis J. Levy, Fort Worth, "Transplantation of the Pectoralis Major for Deltoid Paralysis."

Dr. William H. Ainsworth, Galveston, "Fractures at the Knee".

Dr. W. S. Dandridge, Muskogee, Okla., "Colles' Fractures".

Thursday the program consisted of papers as follows:

Dr. Arthur L. Cooper, Somerset, Ky., "Fractures of the Forearm".

Dr. Lee J. Cordrey, Cleveland, "Analysis and Management of Greater Multangular Fractures".

Dr. Roger Anderson, Seattle, "Anatomic Rota-

tion Method of Treating Fractures of the Lower Extremities".

Dr. W. Compere Basom, El Paso, "Fractures in Children: Stressing Conservative Management in Shaft Fractures."

Dr. Walter T. Henderson, Richlands, Va., "Fractures of the Lumbar Spine".

Dr. W. L. Waldrop, Oklahoma City, "Amputations . . . Levels and Criteria".

Dr. Charles S. Graybill, Lawton, Okla., "Elbow Fractures".

Dr. Elias Margo, Oklahoma City, Okla., "Complicated, Compound Ankle Fractures".

Dr. George W. Horton, Odessa, Texas, "Ankle Effusion Following Leg Injuries".

The doctors' wives and the doctors themselves were all enthusiastic about the excellent social activities which were arranged. In spite of a heavy scientific program there was still time for a very interesting chuck-wagon dinner at the Frontier City which in turn is a most interesting place to visit. A noon luncheon featured a travel cruise colored movie. The dinner-dance, as usual, was excellent,

The scientific exhibit had such helpful suggestions as the use of safety belts in automobiles, demonstration of a special skin graft instrument, and a very excellent demonstration of skeletal pinning techniques to the use of external pins. Incidentally, these are very useful in fractures which are absolutely too comminuted to lend themselves to open reduction and internal fixation.

The American Fracture Association had a skeleton which displayed the technique of skeletal pinning and its proper use.

The next annual meeting will be in New Orleans. On Sunday, November 1st, 1959 there will be the instructional course in fractures. The American Fracture Association meeting will be Monday, Tuesday and Wednesday and part of Thursday. Dr. Elias N. Kaiser, regional vice-president living at Montgomery, Ala., will be in charge of the program.

From the extent of his plans already in evidence this is going to be an outstanding meeting. The dates are, Nov. 1, 2, 3, 4 and 5, 1959. Reservations should be made now for the Hotel Roosevelt which will be headquarters for the meeting.

ORIGINAL ARTICLES

The Operative Transplantation of Tumor Cells

By JAMES M. OVENS, M.D., Phoenix

A fact well established but not sufficiently realized by many people doing cancer surgery today, is that cancer cells may be transplanted from the original tumor to another site in the same individual by surgical instruments. Cancer cells can be transported from one site in an individual to another site by a knife blade, hemostat, retractor, glove, needle or other surgical instrument. Numerous incidences of cancer implantation at the time of tumor biopsy or curative surgery have been reported.¹

Saphir² has demonstrated the presence of viable tumor cells on knife blades used for removal of biopsies from malignant tumors. He carried on examinations of the knife blades used in obtaining biopsies of tumors, particularly breast tumors. By taking direct smears and washings from the knife blades, he was able to demonstrate the presence of viable tumor cells. He called attention to the danger of transferring and transplanting tumor cells to healthy tissue by this method.

These cancer cells can be implanted in a denuded surface by an instrument and grow there. Brandes ³ et al, have centrifuged the contents of surgical operating room wash basins and found well preserved tumor cells in the sediment. Tumor cells have been found in the centrifuged fluid from operating room basins when there was no apparent gross entrance into any tumor. Fortunately, all these cells do not grow where they are implanted. The resistance of the body overcomes these parasitic tumor cells in a great many instances.

Accidental Implantation

Dvorak⁴ has called attention to the accidental implantation of an intraperitoneal malignant tumor into the abdominal wall at the time of surgery. The implantation of a giant cell tumor from the original bone site to the bone graft site, apparently by the surgical instruments used, has been reported in the literature by Joynt.⁵ Durbin and Smith⁶ report a case of a chondrosarcoma arising at a site in the tibia where cancellous chips were previously

taken to fill in a cavity in the calcaneus where a tumor which was believed to be an enchondroma was exposed and curetted. Both of these tumors were later proven to be chondrosarcoma.

The tumor arising in the bone graft donor site apparently was implanted there by instruments at the time of surgery. They state that this recurrence was found in the donor area, although, as far as they knew, separate instruments were used for this stage of the operation. Apparently the donor area was contaminated in some manner by instruments, washing solution, needles or something that had come in contact with the original chondrosarcoma.

Byars et al, have recently called attention to the ease of implantation of mixed tumors of salivary gland origin and cite incidences of this phenomenon.¹¹

Radical Mastectomy

William C. White³ has reported a case of a radical mastectomy being done for adenocarcinoma of the breast in which a skin graft was necessary for closure of the operative defect. The skin graft was taken from the thigh with a Padgett-Hood dermatome. The graft was taken by the same surgeon who performed the radical mastectomy, and was taken without changing gloves.

Even though no gross tumor was knowingly encountered at the time of surgery, three months later adenocarcinoma developed in the donor site. Following this, his group began using arterial clamps only once, and began changing knife blades several times in the course of a radical mastectomy in order to prevent unnecessary implantation of tumor cells.

Most of us have seen the mastectomy scar studded with recurrence of breast carcinoma along the scar alone, implanted into the scar by the same knife that was used in doing the original biopsy. In only too many instances, the same knife that is used for excising the original carcinoma for

biopsy is used to make the incision for the following radical procedure, thus becoming the implanting agent itself.

25 Cases

Ryall⁷ has quoted 25 cases of carcinoma being spread or implanted by surgical instruments. Fifty years ago he concluded that carcinoma was a highly infectious disease, and that while it was not communicable from one person to another, it was infective and transplantable.

He pointed out incidences of cancer implanted by the needle in skin suturing after carcinoma operations; of cancer implanted in drain holes after breast carcinoma operations; of carcinoma implanted in the abdominal wall following acites aspiration from carcinomatous fluid; and of carcinoma implanted in the laparotomy wounds following hysterectomy from carcinoma. These incidences were all quoted 50 years ago, and while cancer is not now believed to be an infection, it is definitely transplantable.

Ryall⁸ stated that cancer cells are capable of independent existence apart from the primary growth, and wherever they come to rest they are capable of reproducing themselves and starting fresh cancerous growths. He called attention to the dangers of transplanting the tumor during operation and classified implants as to suture scar infections, nodular infection of the wound, diffuse or brawny infections of the wound, and distant implantations.

While discussing exploratory incisions into tumors, Ryall stated that tumor cells float out in the escaping blood and infect or cling to the surgeons hands, scalpel or other instruments or towels used for the operation and anything else in which they may come in contact. In an excellent article published in 1908s he stated the following seven precautions which he adopted where excision was immediately carried out following biopsy:

Exploratory Incision

- 1. The exploratory incision is securely closed after seeing that all hemorrhage has been checked.
- 2. After closing the wound steps are taken to prevent any escape of blood between the sutures during subsequent manipulation.
- 3. All instruments, sponges, ligatures and sutures which had, up to this stage, been used, are promptly discarded or else resterilized before using again.
 - 4. Fresh cloths or towels are employed for iso-

lating the area of operation, and those previously used are laid aside (redraped).

- 5. All lotions and lotion bowls are considered as being infected, and a fresh lot are supplied.
- 6. After closing the wound, the skin in the neighborhood of the exploratory incision is washed free of all blood and then thoroughly prepared by further washings with antiseptics, just as carefully as it is prepared preliminary to any operation.
- 7. The surgeon's hands and those of his assistants are rewashed, scrubbed and prepared with the minutest detail in a similar manner to that carried out at the commencement of the operation.

Regown and Reglove

When an initial biopsy of a tumor is done to find out whether or not a malignancy exists, separate instruments should always be used for the eradicating surgery which follows if malignancy is found to exist. After the original biopsy, everyone concerned with the biopsy, or the instruments associated with it, should regown and reglove; new instruments should then be used for the surgical procedure that follows. It is not enough to merely wash one's gloves, as is sometimes done even today. Tumor cells may remain viable and then be implanted at the time of surgery.

James Ewing⁹ in 1933, discussing the proper method of biopsying a breast tumor, pointed out that instruments and gloves used in the breast biopsy should be discarded and new gloves and instruments introduced for use in the radical mastectomy that followed the biopsy if the tumor was malignant.

Inadvertant Entrance

If, in the performance of any operation for carcinoma, one inadvertantly enters into the carcinoma, whether this be into the primary tumor or whether this be into one of the metastatic lymph nodes in the area, all attempts should be made not to spread or transplant this tumor any more than can be possibly avoided. The exposed tumor area should be covered as well as possible, preferably by suturing normal tissue over the area. The contaminated instruments should be discarded and the contaminated gloves and gowns should be replaced by uncontaminated ones.

Whenever an excision biopsy is done for diagnosis, and a diagnosis of malignancy returned and

curative surgery done at a later date, the original biopsy should be excised en toto rather than be reopened or traversed in any manner. The small skin openings left from punch biopsy of various sorts should also be excised rather than ignored when the curative surgery is done. Zelman has cited an instance of needle tract implant in liver biopsys.¹⁰ It is only by taking all possible precautions that the spread of carcinoma by the operating surgeon can be kept at the lowest possible minimum.3

Precautions

These principles naturally find their most common usefulness in the operation of radical mastectomy for breast carcinoma. Here a separate table should be used for the biopsy instruments, and if radical mastectomy follows, the instruments used for the biopsy should be discarded and new instruments used. All persons connected with the original biopsy should regown and reglove. This same principle applies in all similar instances

The precautions adopted by Ryall and published in 1908 can be heeded today in the performance of cancer surgery. He furthermore stated many a case of cancer recurrence was due, not so much to the surgeon failing to cut wide of the disease, as it was to his faulty technique in allowing cancer infection to take place during opera-

It behooves all of us doing tumor surgery today to always have in mind the seven cardinal points emphasized by him half a century ago. We should at all times have in mind that tumor cells can be transplanted. We should do our best to see that they are not transplanted at the time of surgery.

1109 Professional Bldg.

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Southwest Texas Medical Assembly To Meet In San Antonio Jan. 26-28

The International Medical Assembly of Southwest Texas will hold its twenty-third annual meeting Jan. 26-28 in San Antonio.

Seventeen distinguished physicians specializing in all phases of modern medicine have been scheduled as speakers.

The meeting will be held at the Gunter Hotel in downtown San Antonio.

The \$20 registration fee entitles the registrant to attend lectures, medical motion pictures, panel discussions, technical exhibits, section luncheons, cocktail parties, golf tournaments and many other features planned for physicians and their wives.

There will be a one day seminar on Sunday, Jan. 25, by the San Antonio division of the Postgraduate School of Medicine of the University of Texas.

Reports of Medical Surveys on American Women In Tropical Military Service

By G. E. LEDFORS, M.D., B.S., M.B., D-nb, D-og, F.A.C.S.,

Instructor in OB & Gyn Medical School, College of Medical Evangelists, Consultant and Senior OB & Gyn at Loma Linda Sanitarium & Hospital, Senior OB & Gyn Riverside Community Hospital, and formerly the Command Surgeon, Far East Service Command

Medical surveys on American Military women in the tropics were rare opportunities. These opportunities occurred during World War II. During this period, American women in the service were shipped overseas in large numbers. A total of 726 were shipped to Hollandia, New Guinea for the headquarters, Far East Air Service Command.

At this place, the climatic and working conditions were no different than any other overseas area under the equator, for the heat, the rain, the dust, the vegetation and the food were the same.

The sameness became monotony. The sun rose and set at the same time day after day. The rain was always in the morning about 10:00 a.m. and between 3:00 and 4:00 p.m. with an average rainfall of 120-140 inches a year. Yes, 10 to 12 feet!

For the male personnel, complete preparations had been made, but for the 726 women who arrived within three weeks in three shipments, little effort had been put forth for accommodations.

Women's Dispensary

The women's dispensary was similar to any in the Southwest Pacific area for any group of men. There were many medical items needed for women which were not forthcoming for almost one month after these Wacs arrived. The dispensary had no nurse. An opthalmologist had been assigned as the dispensary physician.

No gynecological equipment for ordinary examinations was available for the first two weeks. The first month (December 1944) must have been a period of truly trying conditions for many of these women. Medical care was improved by obtaining equipment and medicines needed, and by assigning a nurse and physician who had an interest in the care of women.

Still there were some conditions the senior medical officer could not change. Camp life was routine. Reveille was at 6:00 a.m. and taps at 9:00 p.m. There was the routine work of doing one's own laundry.

All dirty clothing was put in a bag, brought to the laundry twice a week. That same evening one picked up his bag of wet clothing and hung the dripping wash out to dry. Many days the wash was again drenched by the warm tropical rain. The women had their own laundry.

The equipment was similar for both women and men. There were two or three large rotating oil drums which were turned by a gasoline driven engine. There were no ironing facilities, except hand irons which were scarce.

The electric current was 220 or 330 volts and not of sufficient amperage to permit the use of hand irons after 7:00 p.m.

Skin Disturbances

As a result, impetigo, scabies and severe folliculitis were very common skin disturbances. At one time, a seething mass of maggots began migrating from one of the latrines because instructions how to dispose of napkins were not followed. This resulted in burning of the latrine with crude oil and gasoline.

Besides laundry difficulties, our American women faced many situations entirely different from their usual way of life in the United States. However, one must realize that women were there because they volunteered. The men were there through no choice.

Many conditions were imposed on women who had known only the American high esteem placed on the fairer sex. In other words, now these women were on the same basis as men in the field or the theatre of war and on a war footing.

It meant regimentation and disciplined housing, entertainment, dress, sanitation, medical care, messing and even insults without any avenue of escape. The escape from reality meant to be shipped back home. This was considered a disgrace. In many instances, women broke both physically and mentally.

The women's area was under a different "policing" system for menial daily chores. The Wacs had regulations which would not permit

women to be assigned to menial duties for over one day. The result was that the girls who cleaned the latrines, the company streets, the recreation hall, and so forth, had to do this before going to work at 7:30 a.m. Those individuals who did the "policing" would have to get up at the early hour of 5:00 a.m. The days work for at least five to 10 per cent of the girls was thus lengthened.

Long Day's Work

Because of long day's work, many girls had difficulty in tidying themselves and being at the office on time. They wore high leather shoes, socks, trousers and shirts. Beneath this clothing they had more apparel, which was not true of the men. Especially in the stout girls, more skin troubles were seen in the axilla, under the neck, and breasts.

The scalp with longer hair gave the girls more trouble than the men had. The men had less trouble in every medical phase except for mental depressions and various eczemas of the feet. The latter may have been due to more walking and the heavier shoes worn by the males.

The males were freer to move about than the women, but the discipline and punishment dealt out to the men was much more severe. The severity was seen in the sentences passed by the military courts. Most of the court martial offenses by the women could have been averted had the women leadership been of a more mature judgment with less petty jealousies.

Even for striking a superior officer—a most serious offense—no woman was ever sentenced to more than two years' imprisonment. This time never was served. The women were returned to the United States and dishonorably discharged. Similar offenses for men carried ten to thirty years—and many men are still serving time.

Free Entertainment

However, all the time was not toiling. Every evening there was free entertainment in the open air theatre. This theatre was very ancient. The ceiling was the tropical, starry sky with the Southern Cross. Instead of leather and plush cushions, the long clay embankment served to seat many hundreds. The most elite seats were rough three inches by ten inches hardwood planks cut by the Air Force Engineer Company, termed the "Thick and Thin Lumber Company".

The only covered portion of the theatre was the projection booth and the stage. On this stage many artists of theatre renown came and imparted a touch of humor or elegance in this crude setting. A short distance from this natural entertainment area was the chapel.

This church had no walls. Upright palm logs supported the roof. This roof was covered with palm branches. These branches kept out most of the rain, but moisture did not injure the furnishings, for the floor was gravel and the seats were of hewed logs.

In one corner stood a black, three and half foot high portable organ and near by an altar.

At this altar worshiped all denominations regardless of race, color or creed. A few marriages and burial ceremonies were held in this chapel after the days work or after 11:15 a.m. on Sundays.

Friends Lost

As the months passed each and every one became accustomed to losing a friend here or there, to seeing a familiar face today and later to hear that he or she would not return. Under these conditions, a confidential survey was made among the women.

The questionnaire was conducted by the writer and was not submitted for any statistical report to any one else because of the confidential medical nature. After seven months in New Guinea, the headquarters moved to Manila, P.I., 14 degrees N. latitude.

These modern quarters had hot and cold water. There were more places to go with only few restrictions. By the time ten months passed, the number of 726 women was reduced to less than 150. A great many of the girls had physical ailments rather than mental illness.

The attrition rate for illness, with subsequent return to the States, was greater at this headquarters than with other units of similar size. The isolation of this headquarters, with no full day off, may have helped to increase the disability rate.

In order to determine the disability rate of some conditions in the women, the following questionnaire was completed four times in nine months.

The data presented will follow the sequence of slides 1 and 2. Some of the data were broken down with a comparison of complexion, for redhead or blonde people had more disturbances in the tropics than their darker complexioned brothers or sisters.

This fact had been known to flight surgeons for many years. The early years of aviation in open cockpit aeroplanes had demonstrated the many difficulties redheaded and blonde men had compared with the few troubles had by darker people.

The comparison of various conditions were broken down into twenty six tables:

- **1.** Confidential medical report Questionnaire for Wac personnel.
- 2. Confidential medical report—continued.
- 3. & 4. Table I-IV—Change in weight.
- **5. & 6.** Table V-VIII Skin involvement of eleven body areas.
- **7. & 8.** Table IX-XII Changes in menstrual cycle.
- **9. & 10.** Table XIII-XVI Change in hair, toe & finger nails.

- 11. & 12. Table XVIII-XX Emotional changes.
- 13. Table XXI—Headaches.
- 14. Table XXII—Dysentery and diarrhea.
- 15. Table XXIII—Changes in vaginal secretion.
- 16. Table XXIV—Urinary changes.
- 17. Table XXV—Construction planning.
- **18.** Table XXVI—Rationalization and sublimation.

The age groups were 18 to 23, 24 to 30, 31 to 36, 37 to 43, and 44 to 50 years, and the complexions were blondes, redheads, and brunettes. All tables have been omitted, except the confidential medical report outline.

CONFIDENTIAL MEDICAL REPORT

	OUEST	TIONNAIRE FOR WAC PE	DATE
1.	~		ASNAge
•			Red Head
2.	•		In past 6 months.
			Gain
			Loss
3	Skin — (Yes or No): Have you had	any skin trouble with scale)
			Underneath Breasts
			Knees Feet
4.			periods since you arrived in the tropics?
			irregular? Do
			, 36 days, other?
	What is duration: 2 days,	3 days, 4 days	, 5 days, more?
	Do you have cramps (Yes or No)	; If yes, do cramps occ	cur on 1st day, 2nd day,
	or longer? Do you have	elots (Yes or No)	? How many pads did you use in the
	States? How many do y	ou use at present	?
5.			Toe nails; Such as
	brittleness, crackling, splitting, dryne		
6.			onflicts in dreams? YesNo
_	Do you forget your dreams? Yes		
7.	Do you have frequent headaches? Yethe head; top of the head		f yes, where; over the eyes; back of
8.			ols)? Yes No If yes, how
			stipated frequently? YesNo
		(Date)	
9.	Have you noticed any change in vagi	nal secretion? Yes	No
10.	Have you noticed any change in urin	nation? Yes No.	Have you itching of the geni-
			Do you have to get up nights?
			st for fluids (non-alcoholic) and frequency
	of urination? YesNo		D 1 (1)
11.			Do you plan for a family?
		-	plan the type of home you want?
	Do you budget your earnings?		
12.			f for all your mistakes? YesNo
			o you believe in God? YesNo No Do you believe in co-
	education of boys and girls, of young		
			be kept by the Command Surgeon. No copies
will		-	etter woman for your country, your home and
	ire happiness.	, , , , , , , , , , , , , , , , , , , ,	,,,,

(Prepared by the Office of the Command Surgeon)

Only two girls or 0.3% of 626 did not gain nor lose weight in a period of ten months. There were 471 or 75.2% who lost weight. There were 153 or 24.2% who gained weight. Of the blondes 79.1% or 125 lost weight, and 20.9% or 33 gained; of the redheads 63% or 19 lost weight, and 36.6% or 11 gained weight; and of the brunettes 74.9% or 328 lost weight, and 25.1% or 110 gained weight. The extreme weight gained was 30 lbs., and the extreme lost was 36 lbs.

Skin Involvement

The eleven areas enumerated were scalp, ears, neck, axillae, breasts, waistline, hands, crotch, knees and feet. The area most frequently involved was the waistline in 126 girls or 20%, and the next was the axillae of 86 girls or 13.7%. The least involved areas were the elbows i.e. only 24 girls or 3.8%. The number of feet involved, 43 girls or 6.8%, were not as great in the women as in the men. The girls wore lighter shoes, and the possibility the girls took better care of their feet. The girls did less marching than the men.

The involvement of the waistline was one fourth of the girls, i.e. 39 or 24.6% of the blondes, one third or 11 or 34.3% of the hedheads, and about one fifth or 76 or 17.3% of the brunettes. This skin involvement was usually an erythematous macular type of lesion.

Occasionally the stout girl had weeping lesions with secondary infection. This condition was very rare among the men. The red complexioned individual had more trouble with his or her skin in the tropics. The same was true of South West Pacific Area as found in Panama.

In 1933-34, the writer examined monthly over 1200 white males in the 4th Coast Artillery. This survey revealed that less than one per cent was free from dermatological infection at the end of one year. Those who had the least involvement of the skin were of swarthy complexion.

It should be pointed out that the extreme humidity and high temperatures did exist in South West Pacific Area which did not occur except in a few places for a short time in the United States.

In this group of women, impetigo was the most common infection. This occurred in epidemic form probably because of wooden toilet seats. These seats were cleaned with cresol solution. If the patient had impetigo she was to use designated benches. However, the scourge of impetigo was teriffic, and many girls had involvements of the neck, axillae, breasts, waistline, and crotch. This was not true of the men.

However, fungus infections were not as severe in the women as the men. Permanganate solution soakings, and drying foot powder were used for foot treatment. Papular and weeping lesions were noted mostly on the feet. External ear infections were much less in these women than in men. Otitis externa infections were seen in troops in the tropics. This condition caused much pain and loss of time.

In the Panama survey, there were 176 unilateral or bilateral severe otitis externa infections in 1200 men in one year. This disease caused 2 to 8 weeks loss of duty. There were 52 or 8.3% of the girls who had external ear infection. This figure included involvement of the pinna and the canal, and no internal ear disease.

Scalp Involvement

The scalp involvement was usually a folliculitis at the margin of the hair in the girls. They would have secondary involvement due to scratching. This condition may have decreased had there been warm water for bathing. No hot water was available for either men or women in New Guinea, but was available in Manila.

Occasionally one saw severe erythema and swelling of exposed parts from the actinic rays of the sun. This condition was rare, for if the men or women traveled any distance on a road, the vehicle was covered. The Air Force had a "sunburn" ointment as part of a tropical first aid kit. This ointment was rather dry and contained titanium oxide. Moist ointments used for skin infections made the condition worse. The drying solution, i.e. permanganate, Burrows, silver nitrate, gentian, and powders were more successful on all skin lesions.

Lichenoid plaques or lichenoid with verrucous changes were not seen in the Wacs. A few of these lesions were seen in the men who had been in the Pacific theatre of war more than 18 to 20 months, and had been taking atabrine (quinacrine hydrochloride).

An interesting observation on skin conditions was noted on moving north to Manila, Luzon, P.I. at 14° N. latitude. The papular and/or weep-

ing lesion decreased in size and intensity. There was not much change in the dry scaling type lesion.

The menstrual cycle data were broken down into changes in regularity, changes in interval, changes in duration of period, cramps and what day cramps occurred, any clots, and any increase or decrease in the number of pads used in the United States as compared to South West Pacific Area. Of the 628 girls, 236 or 37.7% had changes in regularity. There were 73 or 41.0% of the blondes, 11 or 34.0% of the redheads, and 153 or 34.7% of the brunettes who had changes in regularity.

In the overall picture of the cycle interval, regardless if the girl had irregular or regular periodicity, there were 19.4% who had 26 days interval, 51.2% who had the most common or 28 day, 17.3% had 30 day interval, 2.5% with a 36 day, and 7.9% had a 37 days interval or longer. This would indicate that over 10% of the total number of girls had an interval of 36 days or more. Also, only 51.2% had a 28 day interval compared with the Uinted States figures of 76-80%. The United States figure for 26 day interval was 10 to 12%.

Menstrual Duration

The days of bleeding was considered the duration. The duration of three, four, or five days was more common in the United States. The duration was increased in South West Pacific Area, i.e.: 80.8%. Whereas in the Uinted States, 90 to 92% of women had three, four or five day duration.

There were 47.9% who had cramps, and 80.4% occurred the first day. Percentage wise the girls 18-36 years had more cramps than those 37-50 group. But the latter group had longer period of cramps than the former. Also, there were 8 girls in the latter group with amenorrhea, either natural or surgical. This fact made the discrepancy in some of the totals.

There were 120 or 19.0% of all girls had clots. The age groups were almost the same, except the oldest group (44-50) had a slightly higher incident of clots (28.0%). There were 28 or 17.7% blondes, 7 or 21.8% redheads, and 85 or 19.4% brunettes who had clots.

The pad or sanitary napkins count was considered as evidence of either decreased interval or increased duration of the menses. The increased

need for sanitary pads was brought out in the introductory statements.

However, the actual increased number was determined by taking the average of four reports made by each girl. Of the 700 young women, over 100 were menstruating simultaneouly. The total number of pads, for a given period in the United States were 6,886, and in like period the number was 7,762 in South West Pacific Area,

The difference was 876. This showed an increase of 14.5% for the South West Pacific Area. Therefore if number of sanitary pads, increased or decreased, in an area where transportation was slow, a sanitary problem would result, and it did.

Also, the disposition of soiled pads, created a nuisance if proper disposal were not followed.

Hair, Toe & Finger Nail Changes

The changes in the hair, toe and finger nails were broken down into comparison of age and complexion groups. Since the affected areas are of skin derivation, i.e. ectoderm, there was the possibility that the change in metabolism and food might have some bearing on the various conditions in the tropics.

There were 465 or 72.9% who had hair, finger and toe nail changes. There were 290 or 45.4% had hair changes, 143 or 22.4% had finger nail changes, and 51 or 7.9% had toe nail changes. The hair changes occurred almost equally in blondes and redheads.

These changes occurred in 50% of these girls. Hair disturbances occurred in 40% of the brunettes. The blondes and brunettes had almost the same percentage on finger nail changes, i.e. 25% and 24.9% respectively, and the redheads had 19%.

Emotional Changes

Data on dreams were obtained in order to determine if there were many conflicts among the girls. Conflicts in dreams were interpreted to be disturbances in their daily life.

When we dealt with dreams, we were in the field of psychiatry and psychoanalysis. We observed in our pilots that those who had disturbing dreams were men who were very fatigued, undernourished, and irritable.

One must remember, that these women had volunteered to go, and there were 3000 men in the area to which they came. As for acquaintances

and attention, there certainly was ample opportunity. However, the abuses that were dealt out to these women by their superiors did account for many emotional disturbances.

These abuses were told to the chaplains and surgeons. As a group, the women seemed to have less conflicts and mental disturbances than the men.

The chief psychiatrist of South West Pacific Area, Col. Allen Challman, stated that there were seven times more neuro-psychiatric cases per 1000 in the Pacific area than any other theatre. There was not one case of psychosis in this women's group. They made adjustments with considerable ease, but the nutritional difficulty and exceedingly many days work without a complete break seemed to disturb them to the greatest degree. There were some anxiety states.

Most Women Dreamed

There were 468 or 72.9% of all girls dreamed. There were 143 or 30.5% who had bad dreams. There were 120 or 25.5% who had conflicting dreams. There were 381 or 81.4% who forgot their dreams. The redheads had a lower percentage in all the categories compared with the blondes and brunettes. Otherwise the percentages were nearly the same figure as for the group at large.

When the younger age groups, 18-30, was compared with the 31 to 50 year old girls, the younger group had 12% more bad dreams, 13% more with conflicting dreams, and five percent less who forgot their dreams. One might conclude that the older group met and solved the daily problems more readily than the younger set. This fact was believed correct when judged in the light of past experience as command surgeon.

Headaches; frontal, occipital, vertex.

Headache data was hard to break down because of the many factors. A few conditions causing headaches were the intense sun's rays, the large amount of clerical work performed under artificial light, the tension they worked under and the type of diet. Infections and allergic sinusitis were rare. Visual fatigue or eye strain were reduced by fitting the individual with glasses.

There were 328 girls or 60.1% who had frequent headaches, i.e.: frontal, occipital, and vertex. There were 220 or 58.2% who had frontal; 83 or 21.9% with occipital, and 75 or 19.8% with vertex type of headache. The youngest group, 18-

23 years of age, had the most headaches or 69.5%. The age group 44-50 had the most frontal headaches, i.e.: 70%. This number of girls was too small to be significant.

Dysentery and/or Diarrhea

There were a few cases of dysentery or diarrhea, i.e. 96 or 15.2%. No evidence of epidemic dysentery was found in this group. There were 174 or 27.7% of the girls had constipation.

Vagina Secretion Changes

There were increased vaginal secretion for 75 or 11.9% of the girls. The change was almost the same in all groups, and ranged from 10.7% to 13.5%. Some had very watery secretion, others, seropurulent to purulent.

Urinary Changes

The urinary changes in the girls were somewhat similar to those which occurred in male troops in the tropics, but not as severe. There were 322 or 51.2% of the women who had urinary changes. The most frequent complaint was frequency of urination. The next frequent complaint was nocturia. There were 110 or 34.1% who had nocturia.

Burning of urination and itching of vulva were complained of the least. There were only 16 or 4.9% with this complaint. Burning of urination was a common complaint of the male troops. The difference in men and women was believed to be the type of work. The men did sweat a great deal more, because of heavier work.

Constructive Planning

Questions pertaining to future planning were asked to bring out how many girls did constructive day dreaming. There were 452 or 71.9% of the girls planned for a home; 401 or 63.9% planned to have a family; 470 or 74.8% had plans for a type of home; and 434 or 69.1% had a savings plan.

On the negative side, 176 or 28.1% did not plan on a home; 227 or 36.1% desired no family; 158 or 25.2% had no plan for any type of home; and 194 or 30.1% had no savings plan.

The age group of 37 to 43 years old had the most negative answers to the four questions. 53.3% of this group had no plan for a home; 74.4% desired no family; 51.1% had no type of home plan; and 48.8% had no savings plan.

The age group 18 to 23 years old had the

lowest percentage with negative answers. There were 20.8% who planned no home; 28.8% desired no family; 24.2% had no type of home plan; and 33.8% had no savings plan.

Rationalization and Sublimation

Rationalization and sublimation questions were asked to bring out how many girls made good adjustments, developed persecution complexes, believed in Divine guidance, had an outlet for their troubles, and believed in close association of young men and women in a common endeavor.

There were many disturbing factors among the girls. There was no escape from discourtesies and nasty remarks, from the same type of clothing, the canned food, and from the entire monotonous routine. There was entertainment almost every evening of some sort, but work was confining and seven days a week. On Sundays, they worked until 11:15 A.M. There were no full days off in this headquarters. As a result, many of the girls came and discussed their problems. Correction of mistakes was justified, but never abuses such as degrading a person or cursing. There was need for mature, sympathetic advice.

More Statistics

There were 59 or 9.3% of all girls who rationalized; 32 or 5.1% who had a persecution complex; 602 or 95.9% who had faith in God; 480 or 76.3% who had close friends, and 600 or 95.5% who believed in co-education.

There were 529 or 90.7% of all the girls who did not rationalize; 596 or 94.9% who had no persecution complex; 26 or 4.1% who professed no faith in God; 148 or 23.7% who had no confidential friend; and 28 or 4.5% who did not believe in co-education.

During World War II some one said "there are no atheists in fox holes." This statement was true in the author's experience. However, there were 26 or 4.1% of the girls professed no faith in God. None of these girls had been exposed to bombing, strafing, nor aboard a ship which had to make evasive maneuvers to avoid submarine attack.

Summary and Conclusion

1. Seven hundred twenty-six women in the Air Force Military service in the tropics had four confidential reports which covered a period from Dec. 1944 to Sept. 1945. The reports were made every two months.

- **2.** Six hundred twenty-eight complete womens reports were tabulated and examined under eleven headings—viz:
- **a.** Seventy five point two percent lost weight. Only two girls did not gain or lose weight.
- **b.** There were eleven skin areas recorded. The waistline was the most frequently involved, i. e.: one in five had this involvement.
- **c.** There were 37.7% of the girls who had menstrual changes.
- **d.** Changes in hair and finger nails occurred in over 45%.
- **e.** This was a very stable group. The older girls met and solved their problems more readily than the younger set, for 143 or 30.5% had bad dreams, and 120 or 25.6% had conflicting dreams.
- **f.** Frequent headaches were had by 378 or 60.1%. Frontal headache was most common.
- **g.** There was no epidemic diarrhea or dysentery; 96 or 15.2% had occasional diarrhea. There were 174 or 27.7% had constipation.
- **h.** There were 75 or 11.9% who had changes in vaginal secretion.
- i. There were 322 or 51.2% who noticed urinary changes. Of these 110 or 14.5% developed nocturia, 16 or 4.9% had burning and itching with urination. The girls did not have the urinary disturbance noted in male troops in the tropics.
- **i.** Most of the girls had definite plans, for 71.9% planned for a home, 63.9% desired a family, 74.8% planned a type of home, and 69.1% had savings accounts.
- **k.** This group of girls were better than the average of American women in stability, education, and health. Not one case of psychosis developed during this survey period. Very few major disciplinary incidents occurred. None of the girls was exposed to gun fire, nor bombing.
- **3.** Most officers and men respected these ladies for their courage, honesty, efficiency and hard work, although there were many men who believed the military service in the tropics was no place for the American women.

Let it be said that these women came voluntarily, worked hard, and endured many unpleasant events. May God bless them all for a job well done.

Case Presentation of Acute Thyroiditis Superimposed on Thyrotoxicosis

By T. E. HAUSER, M.D., Carlsbad, N. M.

History: This patient is a 28-year-old Spanish American female whose history dates back to two and one half months before admission to the hospital, at which time she had the onset of moderate nervousness and began losing weight despite a normal appetite.

As this progressed, she lost from 123 pounds to 100 pounds and during the month prior to admission, she noticed definite quadricep weakness and also some weakness in the upper extremities, making it very difficult for her to perform her usual household chores.

There was no associated change in heat intolerance, no palpitation or diarrhea. The patient continued without seeking medical advice until a week before admission at which time she developed an upper respiratory infection with pain in her left ear and difficulty in swallowing.

No Benefit

After receiving six injections of Penicillin by an osteopath and not receiving any benefit from this, she came to the hospital complaining of severe pain in the region of her thyroid gland and severe pain in her left ear. She also had generalized malaise, moderate dysphasia and inability to move her neck freely.

Physical examination: At this time revealed a well nourished Spanish American female. Examination of the head revealed no Stellway, Von Graef or Moebius sign. The ear drums were intact. No mastoid tenderness. Pharynx appeared to be clear. Tongue was clean, in mid-line. The teeth were in good repair.

Examination of the thyroid: On inspection one could see a moderate amount of enlargement of the thyroid gland with some increase in the size on the left side. This gland was extremely tender, was not fluxuant, was hard and not nodular. The left lobe was more enlarged than the right.

The heart revealed a sinus tachycardia of 110. No murmurs, rubs, or enlargements. Lungs were clear to P. & A. Breasts—Negative. Abdomen—Liver, spleen and kidneys not palpable.

Extremities—There was a fine tremor of the extended hands which were also warm. There was no lymphadenopathy. Her temperature was 99.6. The admitting laboratory findings: Urinalysis revealed a specific gravity of 1.020, negative sugar, albumin and microscopic.

The blood count revealed an 8,900 white count with 76 polys, 9 non-filamented, 15 lymphocytes. Hemoglobin and hematocrit were normal. V.D.R.L. was negative. The sed rate was 85 mm/hr.

Admission B.M.R., performed the following day, was +23. P.B.I. was 15.5 mg.%. This patient had received no iodine preparations prior to admission to the hospital. Chest x-ray was negative.

Clinical course: The patient was placed on A.C.T.H., Tetracycline, and Tapazole. The thyroid gland gradually subsided in size and the tenderness decreased. After five days in the hospital, she was asymptomatic and was discharged on Tapazole therapy.

After three days at home, she again had a recurrence of her thyroiditis with a recurrence of her symptomalogy and the pain, tenderness, and enlargement of the thyroid again was about the same as on the previous admission.

She was again restarted on Actharjel and during the following six days, the patient became asymptomatic.

Strength Improved

The thyroid gland decreased in size and was barely palpable prior to discharge at which time she was placed on a maintenance dose of Deltra and continuation of the Tapazole. The patient since then has continued to gain weight and her strength has improved.

Her B.M.R. has decreased to +16. Tachycardia is now absent. The patient has gained weight and Deltra was discontinued without any recurrence. Tapazole therapy is being continued.

Discussion: This case represents an unusual coincidence of a patient with a history of thyrotoxicosis over a period of two and one half months who suddenly developed a superimposed sub-acute thyroiditis.

While the incidence of thyroiditis is rare, the occurence of it in a patient with hyperthyroidism is an even more rare clinical occurrence. Radioactive iodine studies were not available for this case.

Response Reported

For therapy in the recent years, Teitelman and Rosenberg reported the case of acute thyroidism who responded to Cortisone after x-ray therapy had failed.¹ Also Clark, et al,² reported three cases of sub-acute non-supperative thyroiditis treated with Cortisone successfully.

Crile and Schneider³ discussed the fact that A.C.T.H. or Cortisone relieves the symptoms within four hours and in forty-eight hours greatly changes the size and consistency of the thyroid whereas x-ray therapy usually takes a week to relieve the symptoms.

However, more frequent recurrence, according to Crile, followed A.C.T.H. or Cortisone therapy. therapy.

A report from Werner,4 Journal of Clinical Endocrinology discussed A.C.T.H. or Cortisone treatment of six patients with sub-acute thyroiditis. He found that efforts should be made to maintain the patient on low doses and continue therapy until they clinically appeared to have a remission of the disease. It may take as long as twelve weeks before spontaneous remission occurs.

Summary

An unusual case of acute non-supperative thyroiditis superimposed on thyrotoxicosis is presented and the therapy of acute, non-supperative thyroiditis is discussed.

517 West Fox Street

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School for Mentally Retarded Children Opens in El Paso

The Sun Valley School, with a plant valued at \$82,000, has been opened in the El Paso Valley for the training of mentally retarded children.

The school, opened in April, 1958, is a private non-profit institution which has been leased for one year by the board of directors of the Memorial Park School for Mentally Retarded Children in El Paso. The board of directors has an option to buy the property at the end of one year.

The school is located in El Paso's lower valley approximately 15 miles from downtown El Paso on 14 acres of farm land with complete facilities for year around boarding, as well as education and vocation training. There are bedrooms for 21 boys in one wing and 14 girls in another wing of the ranch style home. It is open to children six years old and upwards.

Applicants must be trainable and ambulatory. Custodial cases cannot be accepted. Educational and vocational instruction includes academic training, weaving, woodworking, ceramics, homemaking, cooking, sewing, dancing, music, animal husbandry, swimming and sports. Physicians are on call at all times.

The school's address is Sun Valley School, P. O. Box 5367, El Paso, Texas.

Coming Meetings

Southwest Obstetrical and Gynecological Society, annual meeting, Paradise Inn, Phoenix, Nov. 14 and 15, 1958.

Postgraduate Course, Congenital Heart Disease, arranged by the American College of Physicians, The Johns Hopkins Hospital, Baltimore, Md., Nov. 17-22, 1958.

Postgraduate Course, Internal Medicine — Especially Therapeutics, arranged by the American College of Physicians, University of Illinois College of Medicine, Chicago, Jan. 12-16, 1959.

University of Colorado Medical Center, Denver, Colo., Postgraduate Course, General Practice Review, Jan. 19-24, 1959.

American College of Surgeons, Sectional Meeting, Shamrock Hilton Hotel, Houston, Texas, Feb. 2-4, 1959.

University of Colorado Medical Center, Denver, Colo., Postgraduate Course, Medical Technology, Mar. 16-21, 1959.

The Arizona Medical Association, 68th Annual Meeting, San Marcos Hotel, Chandler, Ariz., April 29-May 2, 1959. Friday, May 1, has been designated as Medical Education Day.

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MONTHLY CLINICAL PATHOLOGICAL CONFERENCE EL PASO GENERAL HOSPITAL

August 21, 1958

F. P. Bornstein, M.D.—Editor—Case No. 1089 Presentation of Case by W. I. COLDWELL, M.D.

A 34-year-old man in coma was admitted to the hospital on July 14, 1958, and died on July 20. An informative history was not obtained. Although married, the patient had lived alone. He had not worked for an unknown length of time. There seemed to have been excessive thirst and urine volume. For several weeks he had not felt well. Three days before admission the patient moved in with a sister. A doctor treated him for pneumonia. When he could not be wakened he was brought to the hospital.

The patient was said to have used alcohol moderately in the past.

Parents, 11 brothers and two sisters were living and well. There was no known family history of diabetes mellitus.

Physical Examination:

T. 103.6 (R), P. 120, R. 48, B.P. 80/30.

The patient was in a deep coma. The skin was moist and hot. Respirations were increased in depth as well as rate. Pupils were small, reacted slightly to light, but were equal. The balance of the physical examination was not remarkable.

Hospital Course:

Urine sugar was 4+, Ketone 2+, albumin 2+. S.G. of 1.030, and contained 6-8 WBC/HPF. Blood sugar was 415 mg.%, WBC was 23,000 with 3 eosinophiles, 4 stabs, 77 segs, and 16 lymphocytes. Hematocrit was 50 volume %, hemoglobin 17 gms.%. One hundred units of insulin was given intravenously and 100 subcutaneously. Sodium chloride solution was given intravenously. Two hours after treatment was started the blood pressure rose to 122/54. Two hours later blood pressure fell to 70/0 and 1-arterenol was added to the I.V. drip. Eight hours after admission, urine sugar had decreased to 2+, urine ketone to trace. Blood sugar was 378 mg.%, CO, 18 mEq/L. Potassium chloride was added to the I.V. solutions, ST segments sagged and T waves were low on the electrocardiogram. A portable X-ray film was reported, "healthy chest".

Lumbar puncture demonstrated pressure of 130 m.m. Total protein of 26 mg.%, sugar 407 mg.%, chloride 160 mEq/L, 1 poly and 22 lymphocytes were reported. There was no growth on routine culture in 48 hours. No acid fast organisms were seen on smear. The patient became restless, was restrained, later was given phenobarbital. Fifteen hours after admission the patient was awake, and asked for water.

Drugs Prescribed

Six hundred units of insulin, 100 milligrams of hydrocortisone, five liters of electrolyte solution plus an unrecorded fraction of two additional liters, and one liter of glucose solution were given during the first 24 hours. Urine output was 1,020 milliliters. Penicillin, Streptomycin and Chloramphenichol were prescribed because of the fever, which reached a maximum of 105.4 (R) on the first day, and 102, 101, 100.4, 104.4 on each succeeding day but was below 100 during the last day

On the second day the patient was awake and able to take two liters of fluid orally. Clinical signs of acidosis were no longer present. Large bullae were noted on the right arm. The patient stated that he was allergic to tape. Diphenhydramine (Benadryl) was given parenterally and hydrocortisone ointment was applied to the lesions every four hours thereafter. On the following day they were punctured. Blood sugar was 385 mg.%, CO₂ capacity 10 mEq/L, and chlorides 132 mEq/L. The patient received one liter of electrolyte solution, 70 units of insulin, voided 860 milliliters of urine. Blood pressure was 134/90 after 1-arterenol was stopped, rose to 180/110 later in the day, for which Reserpine was prescribed.

During the night the patient was restless, became delirious. The urine was noted to be tinged with blood. Urinalysis the next morning was reported as having an S.G. of 1.017, acid reaction, 3+ albumin, 2+ sugar, and was packed with red blood cells.

On the third day the patient seemed confused, moaned, complained of "hurting all over." Blood sugar was 422 mg.% in the morning, 407 in the afternoon. He received 225 units of insulin, 500 milliliters of fluid was taken orally and 1000 milliliters of salt solution was given intravenously. Urine output was 835 milliliters, Continuous Wangensteen suction was initiated for acute gastric dilatation with removal of 785 milliliters of brown fluid on the third day. Penicillin and Streptomycin were stopped; tetracycline was begun. WBC was 15,300, stabs. 5, Segs. 74, Lymphs. 20 and Monos, 1,

Lumbar puncture was repeated. Pressure was not elevated; 2 polys were counted; protein was 24.5 mg.%, sugar 385 mg%. No budding yeast cells were seen on India ink preparation. Routine culture was sterile. Typhoid, paratyphoid, Brucella and Proteus OX-19 agglutinations were negative. X-rays were reported: "Skull negative for evidence of depressed fracture or increased intracranial pressure. Abdomen, adynamic ileus. Healthy chest. No evidence of cardiac enlargement". Blood urea nitrogen was 20 mg.%.

Serum was drawn for possible later encephalitis agglutination-complement-fixation studies. A request was made for a 24 hour urine for porphyrin and heavy metal examination but the results of these tests, if done, were not available.

Diastolic blood pressure varied between 85-110. Respirations increased in depth and rate. Delirium re-appeared.

One liter of electrolyte solution and 200 mg. of hydrocortisone were given on the fourth day. Blood sugar in the morning was 422 mg.%, 415 in the afternoon. One hundred ninety-five units of insulin were given during 24 hours. Urine output was 1180, gastric suction 1050. When serum sodium of 174 and potassium of 3.8 mEq/L were reported (a delay of two days was due to an inoperable flame photometer) sodium was stopped and only glucose with potassium were given. Four liters of this solution were received by the patient during the fourth day.

WBC rose to 20,100 with 10 stabs, 85 segs., 4 lymphs, and 1 mono. Hematocrit was 37, hemoglobin 12.6, prothrombin time was 70% of control, bleeding time 5 minutes, clotting time 2 minutes 45 seconds. BUN rose to 47. Creatinine determination on whole blood was reported 9.2 mg.%.

Uremic frost appeared on the fifth day. Blood pressure dropped to 110/70 where it remained until terminal shock occurred. The patient appeared to be severely acidotic. Edema was apparent only at the site of the bullous lesions. Blood sugars were 372 and 415. The patient received 350 units of insulin, four liters of glucose with potassium, and put out 724 milliliters of urine, 850 by Wangensteen suction and 300 of aspirated pharyngeal secretions. CO₂ was 10, chlorides 144, potassium 4.5 and sodium 158 mEq/L. BUN was

52 mg.%. The patient became incontinent of formed stools. Jerking movements appeared. Respirations weakened and became labored.

The urological consultant felt that the patient had a chronic pyelonephritis with an acute exacerbation and an acute prostatitis, ordered I.V. Furadantin.

Cyanosis, twitching, labored breathing, edema of the arms, and coma were noted on the sixth day. The patient received four liters of glucose with potassium and 30 milliliters of Furadantin added to each flask. Urine output fell to 475 milliliters. There was 1600 by gastric tube and 200 milliliters of pharyngeal secretion. Glucose was 430 in the morning, 108 mg.% in the afternoon. CO₂ was 5, chlorides 142, potassium 5.3, and sodium 165 mEq/L. Serum albumin was 4.2 gms.%, globulin 1.5, urea nitrogen was 54.5 mg.%. Urine was acid, S.G. 1.016, albumin 2+, sugar 1+, WBC- 2-3/HPF, RBC many.

On the seventh day vital functions continued to deteriorate. Urinary output ceased when shock failed to respond to vasopressor agent. Approximately 600 milliliters of glucose in water with potassium and Furadantin was given. Blood sugar was 336, urea nitrogen 69 mg%, 300 units of insulin were given. Gasping respirations were noted and the heart stopped beating a little over six days after admission.

Clinical Discussion: Dr. W. I. Coldwell

This is the case of a 34-year-old man admitted in a coma. The history was very sparse. Polyuria and polydipsia and lack of sudden onset in the presence of coma favor a type of metabolic disease. The statement was made that he used alcohol moderately. This usually means a heavy intake, as the truly moderate drinker generally admits to an occasional drink.

The physical examination substantiates the diagnosis as diabetic coma, as do the initial laboratory findings. He was given an average dose of 200 units of insulin, saline, and norepinephrine for shock. The response appeared good with decrease in glycosuria, urine ketosis, and only a moderately low CO_2 .

On the basis of electrocardiographic evidence of hypopotassemia, he was given potassium chloride. This probably was necessary, but in view of albuminuria and a somewhat precarious urinalysis, it should be given with caution, at least in the early stages of diabetic coma.

The amount given was not stated in the protocol. Fifteen hours later he was awake and conscious. I can imagine the house staff felt quite relieved and confident that he would continue to improve, but as the subsequent course reveals, it was a false sense of security.

He was given hydrocortisone I.V., presumably as an anti-shock measure. The diabetogenic effect of corticosteroids is well known and the use of this might be questioned. The only real valid use of the corticosteroids in diabetes might be in the occasional insulin allergy where the dose of insulin might actually be less with the use of the steroids or cortisone.

As mentioned in the history the man had a bullous exanthema suggesting an allergic reaction. During the entire course of this patient's illness, he required very large doses of insulin, and very poor control of the diabetes was achieved, evidenced by the continued high blood-sugar levels and continuing acidosis.

This appears to be a case of insulin resistance. This condition is said to exist where there is an inability to obtain control of the disease with 200 or more units of insulin per day. The mechanism of this is not understood fully. First, there may be inactivation at the site of injection.

A hypersensitivity or allergy reaction may be present. In this case, bullous lesions are noted on the arm, supposedly from allergy to tape. These were treated with parenteral benadryl and local hydrocortisone ointment,

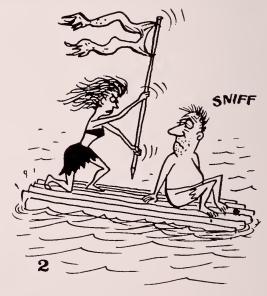
No mention is made of further allergic reactions, or of local reactions at the site of injections. Some edema of the upper extremities was noted at a later date in the course of his illness.

Since he was given hydrocortisone I.V. the first day with improvement in the diabetic state, this type of insulin resistance could have been a factor here. However, it was repeated several days later and no apparent improvement in the diabetes occurred.

Another mechanism of insulin resistance is increased destruction in the blood and liver by insulinase. Rarely, antibodies to insulin may exist. As is well known, in shock with severe acidosis, insulin resistance commonly occurs; but here, after shock and acidosis were controlled, he continued resistance. So other factors must have been operative.

In the presence of severe infections, resistance occurs. This man was said to have been treated for pneumonia by a local doctor. Chest X-rays showed no evidence of it. The urine showed only a few pus cells, hardly indicative of severe pyelone-phritis, although it may be present with few urinary findings. Spinal fluid findings of twenty-three cells hardly suggest any significant infection.





No growth was seen on culture.

No tuberculosis was found. Febrile agglutinations were negative. The white blood count was elevated, at least partially from dehydration, as is usual with diabetic acidosis. The patient was given a try-out of antibiotics in adequate quantities which probably would have destroyed sensitive bacteria had they been present.

A word about the use of Penicillin in coma of any type: The incidence of reaction to this antibiotic is so high these days that extreme caution should be used in comatose patients lest an anaphylactic or severe allergic reaction might occur.

Liver disease can commonly cause insulin resistance, particularly in hemochromatosis. This patient had no history or physical signs of liver disease. The serum albumin was 4.2 and globulin 1.5, certainly not very abnormal. The prothrombin was 70%, a bit abnormal, but no other liver function tests were done.

Certainly we have nothing in the protocol on which to base a diagnosis of liver failure. Pancreatitis can cause diabetes, usually a milder type. Here, there must be extensive destruction of islet tissue. There was no history of abdominal pain and apparently no serum amylase or lipase studies were done.

Brain lesions, in the thalamic region or third ventricle can cause diabetes. This patient was in coma and had some cerebral signs, probably all attributable to the coma and the disordered metabolic state.

No mention is made of abnormal localizing neurological signs on physical examination. Spinal fluid pressures and proteins were normal, which speaks certainly against a space-occupying brain lesion.

Also the X-ray of the skull was negative. Various endocrinological disorders can cause insulin resistance. Hyperthyroidism can commonly aggravate a pre-existing diabetes. There was no goiter or other evidence of hypermetabolism.

Pituitary lesions of various sorts can cause resistance to insulin. Acromegaly was obviously not present here. Cushing's syndrome, where due to brain tumor or more commonly adrenal cortical tumor or hyperplasia, is often associated with diabetes. No "Cushingoid" picture is described for this patient.

He did have hypertension at intervals when out of shock and apparently not to a result of the overuse of levophed. Hyperfunctioning of the adrenal cortex is a real possibility.





 I would like to bring up the possibility of a primary aldosteronism existing here. Several years ago a sodium-retaining, adrenal-corticoid preparation, aldosterone, was discovered. It has been found in very large amounts in the urine of patients with various edematous states, such as renal failure, cardiac failure, and hepatic failure.

However, the primary aldosteronism is that in which the disease is associated with basic adrenal gland disease, usually an adrenal cortical adenoma. The disease has been called potassium-losing nephritis. The clinical manifestations are periodic severe muscular weakness, intermittent tetany, parasthesias, polyuria, polydipsia, and hypertension.

There is no edema. The characteristic biochemical alterations in the blood consist of hypocalcemia, hypernitremia and alkalosis. Low urine output and mild proteinuria are present.

Aldosteronism could explain some of the patient's hypermitremia, on the basis of excessive mineral corticoid reaction with some excessive glucose corticoid action, causing an aggravation of the diabetes.

Many of the findings in primary aldosteronism, of course, do not fit this case, but a combination

of excessive adrenal cortical functioning hormones might.

This patient had renal disease. Proteinuria was consistent throughout. Hematuria was noted on at least two occasions. The urine specific gravity was good and the output adequate until the terminal failure. Uremic frost was noted terminally.

There was moderate azotemia until the final days of his illness, when it became severe with a creatinine of 9.2, a startingly high level if accurate, and BUN 54.2. No true edema or evidence of hypertensive cardio-vascular disease was present, ruling out Kimmelstiel-Wilson's syndrome.

The presence of renal necrotizing papillitis is a possibility or he may have had, as noted by the urological consultant, a chronic pyelonephritis. The possibility of an acute glomerulonephritis must be considered, although at this age and with these findings this would be rather unusual.

A pure ischemic nephrosis, secondary to the severe dehydration and circulatory deficiency, with secondary renal insufficiency may have been the renal lesion present. The very high specific gravities noted would favor this condition.

The fluid and electrolyte studies in this case are interesting and the house staff, attending phy-





sicians and laboratory personnel are to be commended in their excellent efforts in this aspect. There was severe acidosis throughout.

The CO₂ combining power ranged from five to 18. The serum potassium was slightly low at the onset, compatible with the electrocardiographic picture and gradually rose to a slightly higher than normal range terminally. This seems consistent with the progressive renal failure. The extremely high levels of chloride and sodium are startling.

The hyperchloremia and hypermitremia were probably in part due to excessive parenteral sodium chloride administration. Also disease of the renal tubules with diminished excretion of chloride, no doubt, was important. The extremely high sodium levels, 185 at one determination, are unusual.

Again the use of excessive amounts of saline parenterally may have contributed to this. In diabetes large amounts of fixed acid are excreted requiring fixed base, particularly sodium and potassium for urinary excretion. Thus the sodium usually is normal or reduced.

It is interesting to speculate on the sodium re-

taining properties of the adrenal cortical hormones and aldosterone, as well as the effect on the glucogenetic hormones previously mentioned.

Also it is interesting to note that the experimentally produced diabetic state from anterior pituitary hormones differs from the naturally occurring disease in causing retention of nitrogen, potassium, and sodium rather than loss.

Final Diagnoses

In summary, my final diagnoses are:

- 1. Diabetes mellitus, insulin-resistant type, with diabetic acidosis and coma.
- **2.** Diabetic nephropathy uremia, probably on the basis of pure ischemic nephrosis.
- 3. Possible adrenal cortical hyperplasia or adenoma with primary aldosteronism.

Clinical Diagnosis: Diabetic coma.

Dr. Coldwell's Diagnoses: 1. Diabetes mellitus, insulin-resistant type, with diabetic acidosis and coma: 2. Diabetic nephropathy, uremia, probably on the basis of pure ischemic nephrosis; 3. Possible adrenal cortical hyperplasia or adenoma with primary aldosteronism.

Pathological Diagnoses: 1. Multiple diapedesis

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type hemorrhages of brain; 2. Nephrosis, mild. Pathological Discussion—Dr. F. P. Bornstein

On autopsy we found the body of an emaciated, slender young man. The examination of the organs of the chest and abdomen were not remarkable. The kidneys were slightly enlarged and a tentative diagnosis of nephritis was made. The brain was not too impressive on gross examination but showed areas which were suggestive of hemorrhage. The microscopic examination of the kidneys was most disappointing (Fig. 1).

There is no evidence of a serious inflammatory or degenerative process and there exists only a very mild accumulation of albuminous material in the tubules. In short, a very mild nephrosis. Under these circumstances, we have to consider that the renal shut-down is purely functional and not due to primary renal disease.



Figure 1

The examination of the brain was interesting and rather surprising. Throughout the brain diffuse hemorrhages were present; mainly, but not exclusively in the white substance (Fig. 2).



Figure 2

Some of these hemorrhages were rather irregular, while some of them show the so-called ring type hemorrhage which shows a circular type of hemorrhage with necrotic brain tissue in the center (Fig. 3).



Figure 3

These hemorrhages have been described in a great number of toxic and metabolic disturbances. It should further be pointed out (Reference No. 1) that systematic observation of acute cases of azotemia have shown acute brain damage of the type encountered here. The second possibility is that these hemorrhages represent a so-called Schwartzmann phenomenon.

The so-called Schwartzmann phenomenon is probably allergic in character. As was pointed out in the protocol, the bullous reaction of the skin which was stated as being of allergic origin, did tie in with an allergic Schwartzmann reaction of the brain.

Metabolic Disturbance

This man had a severe metabolic disturbance which is the normal course of events would have produced death within the first 24 hours of his admission. How the various secondary electrolyte disturbances, steroid medications and all other agents which have deformed his metabolic system express themselves in morphologic lesions, is a problem which will need further observation in the future. We must realize that with the advances of medicine and the corresponding changes of diseases, new morphological correlations will have to be established.

In summary, we then have here a case of diabetes with insulin resistance. He developed an acute metabolic renal insufficiency and died in a coma which was accompanied by multiple petechial hemorrhages. The latter may represent either a response to the acute azotemia or an allergic phenomenon. It should be added that Schwartzmann type allergic phenomena have been observed even in the presence of extensive steroid administration.

REFERENCE

Lesions of Central Nervous System Associated With Kidney Disease by Bodechtel and Erbsloeh in Henke-Lubarsch, "Handbook of Special Pathologic Anatomy and Histology," Volume 13, Part 2, Page 1392.





SAUL B. APPEL, M. D. Certified by the American Board of Internal Medicine

> INTERNAL MEDICINE CARDIOVASCULAR DISEASES

Suite 10E KE 3-S201

EL PASO MEDICAL CENTER 1501 Arizona Ave.

ANDREW M. BABEY, M. D. Certified by the American Board of Internal Medicine CARDIOVASCULAR DISEASES

250 West Court Avenue

JAckson 4-4481

Las Cruces, N. M.

JOSEPH BANK, M. D.

Diplomate of American Board of Internal Medicine and American Board of Gastroenterology GASTROENTEROLOGY, GASTROSCOPY

800 North First Ave.

ALpine 4-7245

Phoenix, Arizona

3500 Physicians Read Southwestern Medicine

FRANK O. BARRETT ANESTHESIOLOGY ASSOCIATES

J. A. Shugart, M. D. (Diplomate American Board of Anesthesiology) Jack Walker, M.D., J. W. Redelfs, M.D., Jack Ellis, M.D.

- ANESTHESIOLOGY -

El Paso Medical Center

KE 3-R431

ISOI Arizona Ave. El Paso, Texas

OTTO L. BENDHEIM, M. D.

DIPLOMATE AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY

5051 N. 34th Street

CRestwood 7-7431

Phoenix Ariz.

RAYMOND J. BENNETT, M. D.

Diplomate of the American Board of Neurology and Psychiatry PRACTICE LIMITED TO NEUROPSYCHIATRY

Suite 7A El Paso Medical Center Phone KE 2-1177

1501 Arizona Avenue El Paso, Texas

JACK A. BERNARD, M. D., F. A. C. P.

Diplomate American Board Internal Medicine

INTERNAL MEDICINE CARDIOVASCULAR DISEASES

Suite 3C El Paso Medical Center 1501 Arizona Avenue

Phone KE 3-BISI

El Paso, Texas

VICTOR M. BLANCO, M.D.

Diplomate of the American Board of Surgery General and Cancer Surgery

Suite 402 Banner Bldg., KE 3-3239, El Paso, Texas

CLEMENT C. BOEHLER, M. D., F.A.C.S. H. W. DEMAREST, M. D., F.A.C.S.

Diplomates American Board Obstetrics and Gynecology

Suite B-A

Medical Center

1501 Arizona Ave.

Phone KE 2-6S91

El Paso, Texas

LOUIS W. BRECK, M. D.

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Practice Limited to Orthopaedic Surgery

520 Montana Ave.

Telephone KE 3-7465

El Paso Fexas

BLOYCE H. BRITTON, M. D.

Ophthalmology

SOS First National Blda.

KE 2-1191

El Paso, Texas

FREDERICK P. BORNSTEIN, M.D.

Certified by the American Board of Pathology Member American Academy of Forensic Sciences, Section of Pathology

616 Mills Bldg.

KE 2-3671

El Paso, Texas

BASIL K. BYRNE, M. D. Diplomate American Board of Pediatrics

IRVIN J. GOLDFARB, M. D. PEDIATRICS

Suite 4A KE 3-B487

El Paso Medical Center

1501 Arizona Ave. El Paso, Texas

ROBERT J. CARDWELL, M. D.

(Diplomate American Board of Obstetrics and Gynecology)

414 Banner Building

KF 3-75R7

El Paso, Texas

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415 East Yandell Boulevard

KF 3-3353

El Paso, Texas

WILLIAM I. COLDWELL, M. D.

Certified by the American Board of Internal Medicine

- INTERNAL MEDICINE -

800 Montana Ave.

KE 3-8373

El Paso, Texas

BRANCH CRAIGE, M. D., F. A. C. P.

(Certified by American Board of Internal Medicine)

INTERNAL MEDICINE

Suite 5B Phone KE 2-7121

El Paso Medical Center 1501 Arizona Ave.

E. S. CROSSETT, M. D.

Diplomate American Board of Thoracic Surgery

THORACIC SURGERY

Cardiovascular Surgery Broncho-Esophagology

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KE 3-B511 or KE 2-2474 El Paso, Texas

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Diplomates American Board of Urology

PRACTICE LIMITED TO UROLOGY

Phone KE 3-1426

El Paso Medical Center 1501 Arizona Avenue El Paso, Texas

GEORGE L. DIXON, M. D. PHILIP G. DERICKSON, M. D. CHRISTOPHER A. GUARINO, M. D.

Diplomates American Board of Orthopaedic Surgery ORTHOPAEDIC SURGERY

744 N. Country Club Rd.

EAst 5-1533

Tucson, Arizona

J. C. DOTSON, M. D.

General Surgery

800 Montana Ave.

KE 2-8111

El Paso, Texas

ANTONIO DOW, M. D., F. A. C. S.

(Diplomate American Board of Surgery)

GENERAL SURGERY

1022 Mills Bldg.

KF 2-7305

El Paso, Texas

HAROLD D. DOW, M. D. FREDERICK J. KOBERG, M. D. STEVE E. HOOD, JR., M. D.

General Practice - Surgery

Box 546 702 Hobbs Road

Phone 3641

Seminole, Texas

L. O. DUTTON, M. D. RITA L. DON, M. D. ALLERGY

616 Mills Bldg.

KE 2-3671

El Paso, Texas

ORVILLE EGBERT, M. D., F. A. C. P. Diplomate American Board of Internal Medicine ALLERGY

DISEASES OF THE CHEST

EDWARD EGBERT, M. D. INTERNAL MEDICINE

Building 3 El Paso Medical Center

KE 2-1645

1501 Arizona Ave. El Paso, Texas

JOHN A. EISENBEISS, M.D., F.A.C.S.

Diplomate of the American Board of Neurological Surgery WILLIAM B. HELME, M.D.

NEUROSURGERY

926 E. McDowell Road

AL 4-3151

Phoenix, Arizona

E. J. ETTL, M.D., F.C.A.P.

Certified by American Board of Pathology

Pathology

3317 Fort Blvd.

LO 6-4351

El Paso, Texas

WARD EVANS, M. D., F. A. C. S.

(Diplomate American Board of Surgery)

SURGERY

414 Banner Bldg.

KE 3-7587

El Paso, Texas





LESTER C. FEENER, M. D., F. A. C. P.

Diplomate American Board of Internal Medicine

INTERNAL MEDICINE CARDIOVASCULAR DISEASES

404 Banner Bldg.

KE 2-5771

El Paso, Texas

JOE R. FLOYD, M. D., F. A. C. S. JOHN A. PONSFORD, M. D.

GENERAL SURGERY

Suite 9E Phone KE 3-58B1

El Paso Medical Center

1501 Arizona Avenue El Paso, Texas

1130 N. Central Ave. 2021 N. Central Ave. Memorial Hospital DOUGLAS D. GAIN. M. D.

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AL 8-7531

CHARLES E. GALT, JR., M. D.

Practice Limited to Obstetrics and Gynecology

513 West Fox St.

Phone TUxedo 5-6666

Carlsbad, N. M.

H. M. GIBSON, M. D., F. A. C. S.

(Certified by American Board of Urology) PRACTICE LIMITED TO UROLOGY

209 Medical Arts Bldg.

KE 2-8130

El Paso, Texas

HAROLD N. GORDON, M.D., F.A.C.S.

OBSTETRICS and GYNECOLOGY

Diplomate of American Board of Obstetrics and Gynecology MARTIN COHEN, M. D.

Practice Limited to Obstetrics and Gynecology 1832 8th Avenue SUnset 2-2559 Yuma, Arizona

JAMES J. GORMAN, M. D., F. A. C. P.

Diplomate American Board of Internal Medicine

DIAGNOSIS - GASTROENTEROLOGY

701 First National Building

KE 2-6221

El Paso, Texas

J. LEIGHTON GREEN, M. D., F. A. C. S.

GENERAL and GYNECOLOGICAL SURGERY

Suite 3A El Paso Medical Center Phone KE 2-9032

1501 Arizona Avenue El Paso, Texas RALPH G. GREENLEE, M. D., F. A. C. P.

Diplomate American Board of Internal Medicine

INTERNAL MEDICINE

401 N. Garfield

2-0561

Midland, Tex.

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ORTHOPEDIC SURGERY

1612 Columbus Ave.

4-4701

Waco, Tex.

RUSSELL HOLT, M. D. B. LYNN GOODLOE, M. D.

GENERAL and GYNECOLOGICAL SURGERY

MEDICAL ARTS BUILDING

415 East Yandell Blvd.

KE 3-3443

El Paso, Texas

RALPH H. HOMAN, M. D., F. A. C. P. CARDIOLOGY

ROBERT B. HOMAN, JR., M. D., F. A. C. S. DISEASES OF THE CHEST - THORACIC SURGERY

Suite 7D Phone KE 3-1409

El Paso Medical Center 1501 Arizona Avenue El Paso, Texas

GEORGE W. HORTON, M. D.

PRACTICE LIMITED TO ORTHOPEDICS

413 N. Lincoln

FEderal 2-1271

Odessa, Texas

LOUIS G. JEKEL, M.D. ROBERT H. SNAPP, M.D.

Diplomates American Board of Dermatology DERMATOLOGY

550 W. Thomas Rd.

CR 4-4901

Phoenix, Ariz.

EMMIT M. JENNINGS, M.D., F.A.C.S.

Diplomate American Board of Surgery

SURGERY - ENDOSCOPY

207 N. Union St.

Main 2-4360

Roswell, N. Mex.

W. A. JONES, M. D.

Diplomate American Board of Neurological Surgery NEUROLOGICAL SURGERY

Suite IC

El Paso Medical Center

1501 Arizona Ave.

Phone KE 2-7579

El Paso, Texas

NOVEMBER, 1958

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G. H. Jordan, M.D., F.A.C.S.

C. E. Webb, M.D., F.A.C.S.

DRS. JORDAN AND WEBB
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STUDY 22	O J J	"pronounced"		•	
Herniated disc	39	25	13		1
Ligamentous strains		4	4		
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Contusions,	Taken and the same of the same				
fractures, and	dur football				
muscle soreness due to accidents	Paramane P	_			2
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STUDY 35	Angebyfler.	"excellent"			
Herniated disc	S section	6	2		
Acute fibromyositis	CO	8			
Torticollis	1 1	_	-	1	
STUDY 46	of to Assessed a	"significant"	Sea har silvani		
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and acute myalgic	PHISTOCHEM				10000
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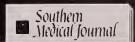
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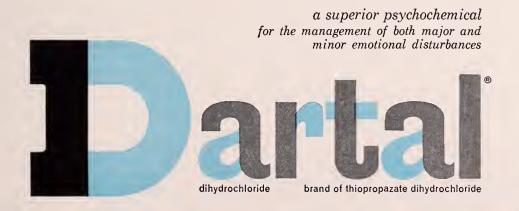
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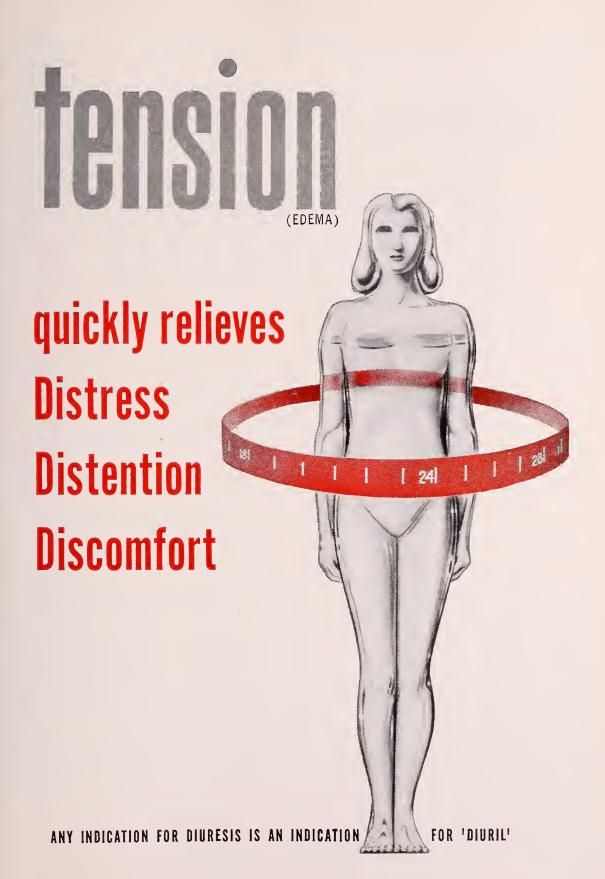
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*'Delvex' (Dithiazanine lodide, Lilly)
1. Swartzwelder, J. C., et al.: J. A. M. A., 165:2063, 1957.

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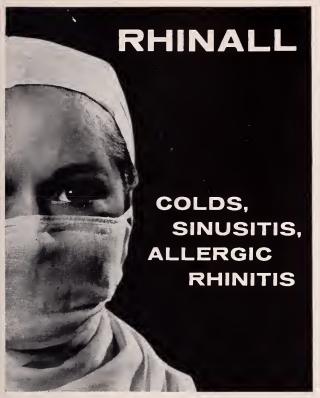
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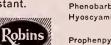
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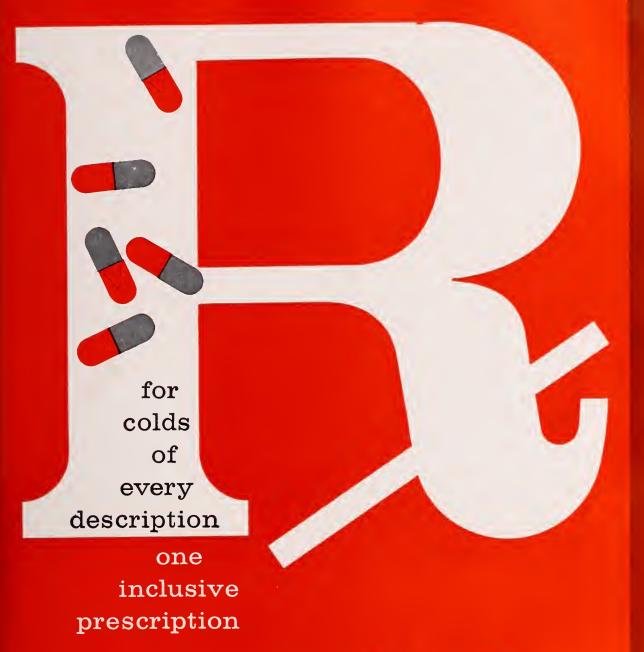
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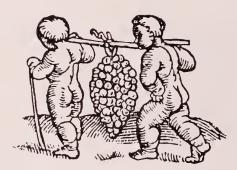
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^{1.} Winsor, A. L. and Strongin, E. 1.: J. Exper. Psychol. 16.589 (1933).

^{2.} Beazell, J. M., and Ivy, A. C.: Quart. J. Studies on Alc. 1:45 (1940).
3. Faroy, G., and Weissenbach, R. J.: Hôpital 25:306 (1937).
4. Okodo, S.: J. Physial. 49:407 (1915).

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References:
1. Boland, E. W.: California Med.
88:417 (June) 1958. 2. Bunim, J. J., et
al.: Arthr. & Rheum. 1:313 (Aug.) 1958
3. Boland, E. W., and Headley, N. E.:
Paper read before the Am. Rheum.
Assoc., June 21, 1958, San Francisco,
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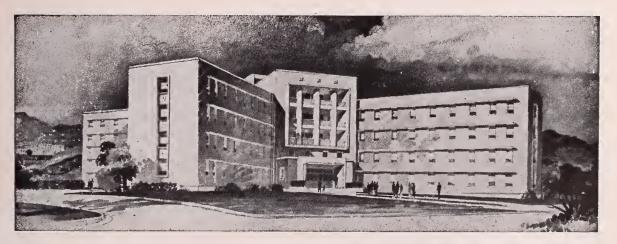
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 Shane, S. J., Krzyski, T. K., and Copp, S. E.: Canad M.A.J. <u>77</u>:600 (Sept. 15) 1957. Tessalon

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VIONS	
loride 103 mEc	mEq.
arbonate 55 mEc	nEq.
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Potassium	16 mEq.	*Bicarbonate	24 mEq.
Calcium	5 mEq.	*Obtained from	metabolic
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Indications For Open-Heart Surgery In Congenital Heart Disease

By John M. Verosky, M.D., El Paso*

The indications for surgical repair of congenital cardiac malformations requiring cardiotomy and extracorporeal circulation change from year to year, and sometimes almost from month to month, as the improvement in surgical techniques and in the mechanical devices gradually decrease the operative risk involved, and as knowledge of the natural life history of the various anomalies grows through continued study.

For example, six years ago, before the days of successful pump oxygenators for total cardio-pulmonary bypass, when atrial septal defects were being repaired by closed techniques, such a defect had to be very large to merit consideration for the blind procedure which carried a high mortality and which sometimes resulted in incomplete closure of the defect.

Cardiologists were loath to recommend this procedure unless serious symptoms were present, with a shunt large enough to produce a pulmonary-systemic flow ratio of three or four to one—a truly huge defect. At the present, an atrial defect worthy of closure is one producing a ratio of two to one. In the future, it may well be that even smaller defects will be regarded as indication for repair.

Much Thought

It requires a good deal of thought to decide which child should be operated. First must be considered the deceptive lack of symptoms in many children who are headed for early disaster. It should be remembered that children with congenital cardiac disability differ from individuals with acquired heart disease in that there is no previously normal state for comparison by the child, parents, or observers. If a child has carried a certain level of exercise intolerance since birth, it becomes surprisingly difficult to judge the degree of the intolerance unless it is very great.

Sometimes a true evaluation of the limitation is obtained only retrospectively postoperatively, when the parents note the remarkable change in the child's activity. In contrast, a child developing acute rheumatic fever will more easily note an alteration in fatigability. Furthermore, children more reliably limit themselves to activities which do not cause uncomfortable fatigue or dyspnea.

Without the external drives, goals, and compulsions of adult responsibilities, they do not press themselves to the point of this discomfort (unless similar external influences, such as the rivalry of team sports, are operative.) In valvular pulmonic stenosis, one occasionally sees a vigorous, well-developed young infant, and frequently sees an active older child who has had very little in the

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^{*}Dr. Verosky this month is substituting for Dr. Jack A. Bernard, regular conductor of this section.

way of symptoms a short while before the onset of lethal right ventricular failure.

Reliability Varies

Second, the reliability of various signs and symptoms in predicting future difficulties varies with the particular malformation present. For instance, radiologic heart size is a good judge of the size of the shunt in an atrial defect; the larger the abnormal flow, the greater the degree of right atrial and ventricular dilatation.

On the other hand, in pulmonic stenosis with intact ventricular septum, the damaging right ventricular hypertrophy is chiefly concentric; great progression of this hypertrophy can occur without correspondingly great change in heart size; more reliable here than the x-ray is the electrocardiogram.

In atrial septal defects, the intensity of the murmur is of little importance; very large defects can produce only a quiet murmur. In pulmonic stenosis, the murmur is similarly of little help, for even mild stenosis can produce a Grade 4 murmur. In these two instances, the murmurs are of little aid in following the patient.

Septal Defect

In a ventricular septal defect, the development of a basal diastolic decrescendo murmur is highly significant, since it may reflect pulmonary regurgitation secondary to pulmonary hypertension. In a case of Tetralogy of Fallot, the factor most often pressing to operation before optimal age is the presence of severe cyanotic spells—a symptom; here, this symptom is of more importance than x-ray or electrocardiographic findings.

The presence of cyanosis per se in one with Tetralogy is of no sinister import; cyanosis developing in a patient with patent ductus arteriosus or valvular pulmonic stenosis is an ominous development indeed.

Thus, to a large extent, which parameters are of greatest importance depend upon the type of malformation present. Correct evaluation of the situation is dependent upon correct clinical diagnosis.

Decision Reviewed

Finally, a decision to delay surgery must be reviewed periodically. Changes in the child's cardiopulmonary physiology occur with the passage of time, and, as noted above, changes in the surgical outlook also occur.

If a complete anatomic and physiologic diagnosis is available, the decisions are relatively simple. Here are current criteria for the most common lesions:

- 1. Septal defects with left-to-right shunts (atrial septal defects, ventricular septal defects, and foramen primum defects). Operation is recommended if there are serious symptoms, if there is a pulmonary-systemic flow ratio of two or more, or if there is pulmonary hypertension (unless the latter is severe enough to preclude survival of the patient postoperatively).
- 2. Pulmonic stenosis. Operation is recommended if right ventricular systolic pressure exceeds 90 mm. Hg. If the pressure is between 60 and 90 mm., operation will probably be necessary, but postponement (with careful following) is a reasonable course. If the pressure is below 60 mm., operation is currently not being recommended.

Tetralogy of Fallot

3. Tetralogy of Fallot. According to Keith, isolated examples of longevity "should not be allowed to obscure the plain fact that the average age of survival is twelve years, and that extremely few patients survive 20 years." This malformation is the commonest cyanotic type surviving past young childhood; even before the days of catheterization it had a better than average chance of being correctly diagnosed.

Since most patients with the illness are obviously blue, not many have escaped detection. Thus, it is one type in which rather reliable survival statistics have been collected. (This cannot be said for many other malformations; in the past, pulmonic stenosis has been misdiagnosed as ventricular septal defect, atrial defects have often escaped diagnosis entirely, innocent murmurs have been called ventricular defects, etc.)

With few exceptions, all patients with Tetralogy should be repaired. If possible, operation should be delayed until at least four or five years of age. If severe symptoms demand aleviation between two and four years of age, total repair, utilizing extracorporeal circulation, should be done, although the risk is higher.

Palliative Procedure

If the infant under two has symptoms serious enough to involve risk of death or cerebral damage, operation should also be done; at the present time, however, the risk in the infant group is so great, that a paliative procedure (such as the Blalock subclavian-pulmonary or Potts aortico-pulmonary anastomosis) is probably preferable, aiming at survival until a later date when curative surgery could be performed. The latter plan is taken with reluctance, since reoperation is generally more difficult, and since pulmonary complications secondary to the artificial shunt can occur, both factors compromising the chances for successful total repair.

- 4. For the sake of completeness, we wish to include the repair of two lesions not requiring cardiotomy and extracorporeal circulation:
 - a. Patent ductus arteriosus. All should be operated, for the usual well-known reasons, except if severe pulmonary hypertension (beyond infancy) forbids repair.
 - b. Coaractation of the aorta. All should be operated. There is still some doubt that an infantile anastomosis will grow with the aorta in every case; thus, except under unusual circumstances, operation is best delayed until the age of eight or nine years. This is ordinarily quite safe, since complications in this malady are usually delayed until at least early adolescence.

Anatomic and Physiologic Diagnosis

These indications presume a complete anatomic and physiologic diagnosis. Ordinarily, this includes hydraulic data obtained by right heart catheterization. The decision is less certain if such data have not yet been obtained. In general then, the more difficult decision is when to recommend catheterization and other procedures, such as angiocardiography, sometimes necessary for complete investigation.

The factors operating in this decision cannot be stated quite so categorically. However, with all the precautions noted above in mind, one should consider the following:

Factors Listed

- 1. Failure to gain. This is an important symptom which, if present without other cause, points to a serious malformation. Normal growth does not, however, necessarily mean that the disease is mild.
- 2. Frequent respiratory infections, especially pneumonia. This is a common warning sign in

many of the patients with left-to-right and some with right-to-left shunts.

- 3. Cardiac failure. This, with certain exceptions, calls for thorough investigation in the near future.
- 4. Severe cyanotic spells, particularly if frequent, particularly if progressing to syncope or convulsions.
- 5. Cardiomegaly beyond a certain degree, depending on the malformation in question. This may be an indication when no other exists (such as in atrial septal defect.)
- 6. Certain electrocardiographic findings, varying from type to type. For example, pulmonic stenosis with right ventricular hypertrophy producing a 20 or higher mm. R wave in lead V1; ventricular septal defect with progressive right ventricular dominance.
- 7. Evidence of pulmonary hypertension, especially if progressive.

Circumlocution

It is at once obvious that a circumlocution is involved here: wise recommendation for or against catheterization depends on criteria which vary with the type of anomaly, and yet the exact nature of the anomaly is determined only by catheterization! However, careful clinical evaluation will usually provide a sufficiently accurate diagnosis that the decision can be made with fair certainty. In about 90 percent of cases, catheterization is aimed less at actually making the diagnosis and more at physiologic measurement of the magnitude of defects, at uncovering hidden associated anomalies, and at confirming the major diagnosis.

Pulmonary Hypertension Problem

The problem of pulmonary hypertension is so serious, deceptive, and damaging that it is worthy of special digression. In the presence of a septal defect, the direction of the shunt is determined solely by the relative resistances on the two sides of the defect. Systemic resistance is normally many times greater than pulmonary, so that the flow is generally left-to-right.

In the absence of pulmonary stenosis, the most significant feature which can change this is the state of the pulmonary arterioles. Dextraposition of the aorta, per se, is of no importance. Even the size of the defect is not important in determining direction; the only influence of the size of

the hole is that a small hole offers greater resistance to flow than a larger one; this is a neutral factor in determining direction of flow.

Resistance Increases

In a certain percentage of patients with left-to-right shunts, pulmonary resistance increases, as reflected by elevation of pulmonary artery pressure and right ventricular work; as the resistance rises, the left-to-right shunt decreases in volume, becomes a bidirectional shunt, and finally a predominantly right-to-left one.

If the defect is then surgically repaired, some of these patients will die from intractable right ventricular failure, since the safety-valve against extreme pulmonary hypertension has been removed by the surgery. The resistance (and pressure) can be due to vasospasm in the lungs, to actual arteriosclerotic-like anatomic changes in the vessels, or to both.

At catheterization, certain tests can aid in deciding what proportion of the hypertension is due to spasm and what to (apparently) irreversible pathologic changes in the vessel walls.

Unfortunate Occurrence

The development of these pulmonary changes is thus an unfortunate occurence. It is impossible to predict just which patient will develop them. The cause of pulmonary hypertension is unknown. Several unsatisfactory theories have been proposed.

- 1. It is a result of the high pulmonary flow itself. This fails to explain why many children and some infants develop pulmonary hypertension with ventricular septal defects, while no children but many adults with atrial septal defects develop the complication, and while only a few patients of any age with patent ductus develop it. Since patent ductus and ventricular septal defect both involve shunts from the high pressure left ventricle, pressure alone cannot be the deciding factor.
- 2. It represents a separate malformation. This cannot explain the gradual development of pulmonary hypertension in many patients; this development has been documented in some by serial catheterization studies.
- 3. It represents a persistance of the fetal thinwalled structure of pulmonary vessels, normal development to thin-walled adult vessels being pre-

vented by the shunt. This theory, too, fails to explain the variation in frequency at different ages in different anomalies.

No Satisfactory Explanation

None of these satisfactorily explains why some individuals of identical age with identical type and size of defect will develop pulmonary hypertension and others do not.

Certain clues should arouse suspicion for pulmonary hypertension: a loud second sound in the second left interspace; certain degrees of right ventricular hypertrophy on the electrocardiogram: and diminution in vascular markings in the peripheral lung fields on the x-ray.

Small Infant

A problem of increasing importance and complexity is that of the small infant with serious, life-threatening congenital heart disease. In the first place, clinical diagnosis in an older child or adult is considerably simpler, since one can usually assume that the vast bulk of the highly complex and rarer malformations have already caused death. Such an assumption is by no means valid in the neonate.

Even in the case of a common malformation, many of the clinical manifestations are less definite and less typical in young infants. In a small baby, physiologic investigation, such as cardiac catheterization, is technically more difficult, usually involving the risks of general anesthesia, the use of less advantageous smaller catheters for the small veins, and the difficulties of hydraulic measurements, such as oxygen consumption measurements.

At the moment, the situation is not pressing, because many of the complex malformations have no satisfactory surgical repair. With the startling progress of cardiac surgery in the past ten years in mind, we can predict that this problem will become much more urgent in the future. At the present time, the chief difficulty is selecting those small infants with desperate situations who indeed have the more easily operated defects.

Summary

In summary, the decision to delay investigation and operation in a patient with congenital heart disease is fraught with deceptive pitfalls, which can be avoided only by careful and repeated evaluation based upon thoughtful consideration of the likely clinical diagnosis and the surgical techniques available.

THE PRESIDENT'S COLUMN

President Terms Southwestern Medical Meeting Outstanding

By ALVIN R. CLAUSER, M. D., Albuquerque

I cannot refrain from again congratulating the doctors of Tucson for the wonderful convention they arranged for the 40th meeting of the Southwestern Medical Association. Those of you who



Dr. Clauser

were present will agree, I am sure, that the scientific program was outstanding. I can only say that those members not present missed a great convention.

The guest speakers were well received, as evidenced by the good attendance at the lectures. An innovation

this year seemed to meet with general approval. Luncheon roundtable discussions were held for the various specialties, where an opportunity was afforded to discuss the respective papers delivered during the morning sessions.

Following the luncheon the attending members were free to follow their own desires, viz: viewing medical motion pictures, golfing, swimming, sightseeing or just plain loafing and enjoying Tucson's beautiful weather.

Chuckwagon Dinner

The cocktail hour and chuckwagon dinner Thursday evening at the Saddle and Surrey Guest Ranch was delightful, the evening perfect for such an event.

Preceding the dinner dance Friday evening the Southwestern Surgical Supply Co. was host to the convention at a cocktail party. The highlight, or rather highlights, at the dinner dance was the Boys' Choir of Tucson and the jazz orchestra composed entirely of practicing physicians of Tucson. Much time and effort must have been spent to achieve such a fine orchestra. Congratulations to Dr. H. D. Cogswell and his capable muscians.

Our convention could hardly have been so successful without the presence of our ladies. It is important that they enjoy themselves at our convention. I have been informed that the ladies' activities were well planned and enjoyed by all.

I am sure that I express the sentiments of all who attended the 40th Annual Convention of the Southwestern Medical Association in saying that an outstanding program was prepared under the direction of Dr. Louis G. Jekel of Phoenix, President, and Dr. Cogswell, General Chairman, of Tucson.

Southwestern N. M., Medical Society to Meet in Deming

The next meeting of the Southwestern New Mexico Medical Society will be held in Deming, N. M., on Jan. 15, 1959, at the Deming Country Club. A panel on the subject of "Tracheotomy—General Aspects and Usefulness in Chest and Brain Injuries," will consist of Drs. W. A. Jones, E. S. Crossett, both of El Paso, and Arthur J. Fischer of Las Cruces, N. M.

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ORTHOPAEDIC SURGERY NOTES

Comments on Scientific Program of The 19th Annual Meeting of The American Fracture Association

Multiple pins, Smith-Petersen nail plus a firm trochanteric anchor plate can be utilized for fractures of the femoral neck and trochanteric region. The technique can be perfected to the point where multiple pins can be accurately inserted. Also a reamer can be utilized to open a hole through the neck into the head, and a cancellus plug of bone graft can be inserted across this area.

The following point was emphasized many times. No matter how strong the fixation material is, the strength of the bone determines the firmness of fracture fixation. In other words, if the bone is soft, the strong fixation can cut out and is, therefore, not stronger than weaker fixation if the bone is weak.

Accuracy Necessary

It was again apparent as it has been in so many previous occasions, that the plating of fractures must be done accurately. If screws are used across a fracture site, the proximal hole should be oversize to allow the screw to slip through and impact the opposite fragment by careful engagement. If a fracture can be treated well by plating, the plate must be well applied; and the fracture must be very accurately reduced.

The fractures which I have seen labeled as held apart by the plates actually were plated in that position. This editor believes that plates accurately applied, screws perfectly fitted; fractures carefully reduced, will give as high an incidence of union as any other type of fixation provided this fixation is used on the proper type case. Shafts of the tibia, forearm bone shafts are exceptionally well managed by this method.

Several Papers

There were several papers on fractures of the

ankle, and extremely comminuted and displaced fractures were shown. Despite excellent open reduction technique some of these will have to be arthrodesed eventually. Probably some time could be saved if some of the severe ankle fractures are arthrodesed initially, if the patient understands and appreciates this opinion.

The discussion period at this meeting is always interesting and all members are urged to take part. Any member can show x-rays, photographs and so forth of problem cases and get some good advice. A well leg traction was mentioned for dislocation of the hip following the prothesis femoral head substitution operation. If the traction is maintained for about six weeks the hip may remain stable thereafter.

Fractures in Children

Fractures in children may be managed more conservatively than fractures in adults. Closed reduction, manipulation and spica type bandaging were used for supracondylars of the elbow. Adhesive traction overhead suspension for femoral shaft fractures, "T-splint" for fractures of the clavicle with complete offset revealed four years later a perfect clavicle even in a boy as old as 14 years of age. Four years later this same patient had a normal looking clavicle and originally it had a complete offset with healing in that position.

In hand injuries skin grafting over healthy surfaces, without waiting for granulation tissue to take place, usually gives better skin than that with a granulation base.

Fractures of the superior portion of the femoral head and hip joint fractures will usually give degeneration. Probably a primary arthrodesis or femoral head prosthesis substitution is best.

Comminuted Fractures

Extremely and extensively comminuted fractures of the femur and tibia were shown treated by external pin fixation. The American Fracture Association was founded by surgeons who employed external pin fixation technique. This meeting, as has been usual in the past, had many excellent papers and exhibits showing the proper technique for pin placement for various fractures where this method is indicated. Excellent reductions and fixation were secured in extensive fractures of the shafts of the femur and tibia for instance, particularly in and through the knee joint.

It seems that if these extremely comminuted fractures are opened, the blood supply is damaged to the fragments. There is no internal fixation which works well with these, and therefore the pins externally work well. Also, it seems that if a knee joint in particular is fixed in traction so that the surfaces are pulled apart, a better range of motion is likely to result.

Beautiful Movie

A very beautiful movie revealed the technique for transplantation of the origin of the pectoralis major muscle up over the shoulder to substitute for paralysis of the deltoid.

Prolonged pain about the ankle following fractures of the os calcis or fractures about the ankle may be benefitted markedly by aspiration of the ankle where there is a little puffy swelling usually on the antero-lateral aspect and injection of hydrocortone.

In placing the Lottes nail for tibia fractures the hole in the upper tibia must be very oblique, almost in line with the intramedullary canal of the tibia. If it is not the anterior surface of the tibia may be fractured; the nail may drive out through the posterior aspect of the tibia; or the nail may bend too much on its end and come out at the lower end of the tibia anteriorly. Even compound, infected fractures have been treated successfully with this method.

Rush Pin

With the Rush pin, beautiful reduction and maintenance of position was seen in a movie with Colles' fracture in elderly people. If the styloid of the radius is intact this method is said to give good fixation.

These comments were derived from papers listed by title and author in previous orthopaedic surgery notes. Space does not allow the mention of the title and authors in this report.

All in all this meeting of the American Fracture Association, which has as its primary requisite of members that they be interested in fractures, was marked by an intense interest on the part of all the members. They participated well in the production of the program. They participated actively in the discussion periods. Fractures of the lumbar vertebrae seemed to do better by the way, if the condition is minimized and the people are treated merely with mild support, physical therapy and early ambulation and return to duty.

Pull-Out Pins

Pull-out pins for severe supracondylar fractures about the elbow in adults seemed to work well.

The 1959 meeting will be in New Orleans, the 1960 meeting will be in Mexico City. The New Orleans one will start on Nov. 1 and the one in Mexico City will start on Nov. 5.

Dr. Earle R. Pace of Santa Fe Heads Southwestern Dermatologists

New officers elected at the annual meeting of the Southwestern Dermatological Society in Tucson, Oct. 25, were Dr. Earle R. Pace, Santa Fe, President; Dr. George Waldriff, Albuquerque, Vice-President; and Dr. H. D. Garrett, El Paso, Secretary-Treasurer.

Speaker at the meeting was Dr. George C. Andrews, consulting dermatologist, Columbia Presbyterian Medical Center in New York City.

APHORISMS and MEMORABILIA

Truths and Concepts Concerning The Nervous System

(continued)

- **16.** "Attacks of vertigo occurring in elderly people with atheromatous arteries or suffering from chronic nephritis or arteriosclerosis must always be regarded as of serious import since they may be the precursor of cerebral hemorrhage or thrombosis."—French, *Differential Diagnosis*.
- 17. "We should admit the value of this sign stiffness of the neck), but I would submit that its presence depends upon involvement of that part of the meninges which covers the dorsal aspect of the medulla. I have seen two patients with tuberculous meningitis die without any cervical rigidity—The absence of this sign, therefore, cannot exclude the diagnosis of meningitis. There are cases in which examination of the spinal fluid provides the first evidence."—C. P. Symonds, *Proc. Roy. Soc. Med.*, 28: 536, 1934.

Rare Case

- **18.** "After the fourth decade it is extremely rare for any case (of migraine) to arise."—G. Bray, *Recent Advances in Allergy*, 3rd Edit., Blakiston, Phil., p. 380.
- 19. "The differentiation between an upper and lower motor neuron lesion may be looked upon as the 'off tackle play' of neurology."—HAROLD R. MERWARTH, Practical lectures delivered to The Brooklyn Hospital Interne Staff, personal communication.
- **20.** "It should not be forgotten that the signs of cerebellar neoplasms, particularly in children, may be precipitated by acute infection, and that an apparent complete remission of symptoms, even as long as a year, may occur in cerebellar neoplasms in children."—Harold R. Merwarth (p.c.).
- **21.** "The lancinating pains of tabes are often precipitated by acute febrile states, a finding which is peculiarly diagnostic."—HAROLD R. MERWARTH (p.c.).
- **22.** "In syphilis of the central nervous system certain important laboratory tests are ignored by

- most physicians, viz., the nature and number of cells, and the quantitative content of globulin present in the cerebrospinal fluid. Accurate prognosis is dependent on these factors."—HAROLD R. MERWARTH (p.c.).
- **23.** "The symptoms and signs of myasthenia gravis are mainly above the neck. Although uncommon, a general abnormal fatiguability may be manifest as the initial symptom."—HAROLD R. MERWARTH (p.c.).
- **24.** "Rupture of an extracerebral intracranial arterial aneurysm is a common cause of sudden death. Many of these cases are encountered by the Medical Examiner as a result. Intracerebral hemorrhage does not result in sudden death."—HAROLD R. MERWARTH +p.c.).
- **25.** "80% of the patients with acute Bell's palsy get well in 4-6 weeks without any treatment."—HAROLD R. MERWARTH (p.c.).
- **26.** "It is good practice to do a gastric analysis on every case of peripheral neuritis. Polyneuritis may be the first manifestation of pernicious anemia."—Harold R. Merwarth (p.c.).

Severe Headache

- **27.** "The sudden onset of severe suboccipital headache followed by convulsions or coma in the young or middle-aged adult is often due to subarachnoid hemorrhage."— C. B. COURVILLE, *Path. Cent. Nerv. Syst.*, Pac. Press Pub. Assn., Calif., 1937, p. 325.
- **28.** "In restless delirium following accidents with fracture of the long bones, one must always think of the possibility of fat embolism of the brain."—C. B. COURVILLE, loc. cit.
- **29.** "The sudden onset of extreme vertigo with nausea and vomiting followed by hiccup and loss of sensibility to pain in one side of the face and the opposite side of the body speaks for thrombosis of the posterior inferior cerebellar artery."—C. B. Courville, loc. cit.

ORIGINAL ARTICLES

Renal Hypoplasia*

By ROBERT F. THOMPSON, M. D., F.A.C.S., El Paso

Hypoplasia of the kidney is a rare malformation characterized by a failure of the organ to grow and to attain full development resulting in a miniature kidney. This tiny organ is recognizable with a distinct cortex and medulla and has a varying degree of excretory function. The condition is generally unilateral although bilateral instances have been recorded. The anomaly is estimated to occur approximately once in every 800 births.

The cause of renal hypoplasia is presumably due to developmental failure during embryological life of the 1) metanephrogenic blastema, 2) metanephric duct, 3) blood supply.

Accepted Theory

The most widely accepted theory as to the explanation of renal hypoplasia is that an inadequate and improperly distributed blood supply nourished the fetal kidney during the embryological period of development.

Herbst has suggested the possibility that there occurs faulty development of the pyramids and collecting tubules with accompanying cystic degeneration and pressure atrophy.

The unequivocal determination of the pathogenesis of a single dwarfed kidney is often impossible to achieve. The reason for this difficulty is that the end stages of renal inflammation occurring early in life may be indistinguishable from congenitally hypoplastic kidneys.

The arbitrary weight limit of 60 gm. has been set by Bell as the minimum amount of renal tissue capable of sustaining life in an adult. Within this weight limit will be included, not only congenitally hypoplastic kidneys but also instances of unilateral chronic pyelonephritis and kidneys whose blood supply has been compressed by trauma or disease.

The diagnosis may be obscured further by in-

*Presented at South Central Section, American Urological Association, Oklahoma City.

stances of renal infection being superimposed upon a congenitally hypoplastic kidney.

The hypoplastic kidney is usually about three to six times smaller than the organ on the opposite side which is always hypertrophic. Two types of hypoplasia have been described:

- a) The architecture of the renal parenchyma is normal, with normal pelvis and ureter. This type is simply a miniature of the normally developed organ (dwarf kidney.)
- b) The medullary portion and the pyramids are absent, only cortical substance being present and the pelvis is thickened and hydronephrotic.

In some of the recorded instances the microscopic studies reveal rudimentary glomeruli and tubules. In others the tissue resembles that in a normal kidney but is present in minimal amount.

In considering renal hypoplasia it must be realized that this malformation of the upper urinary tract represents an embryological defect and lack of development during fetal life when the organ, in its evolution, did not develop to its full extent or the wolffian duct of the mesonephros failed to produce a satisfactory renal bud.

Surgical Aspects

In studying the surgical aspects of congenital anomalies of the kidney it must be realized that hypoplasia is only a degree of the defective embryological process. The extreme degree of this incomplete fetal development results in a congenital absence of the kidney. The next recognizable degree of this process is renal aplasia. Renal hypoplasia is the mildest form of this congenital malformation.

The following classification and differentiation of the three related conditions are from Gutierrez:

Hypoplastic Kidney

1) Small or infantile in type; other kidney hypertrophic

- 2) Normal renal parenchyma
 - a) With medullary and cortical substance
 - b) With absence of pyrainidal substance
- 3) Microscopic sections reveal normal or rudimentary glomeruli and tubules
 - 4) Rudimentary or hydronephrotic pelvis
- 5) Calyces bizarre in position and size, sometimes absent
 - 6) Patent ureter
 - 7) Normal urine secretion
 - 8) Diminished or normal renal function

Renal Aplasia

- 1) No true kidney
- 2) No evidence of pelvis
- 3) Absence of true renal pedicle
- 4) Renal artery small or absent
- 5) Ureter incompletely developed and not patent
 - 6) No excretion of urine
 - 7) No renal function
- 8) Bladder with two normal ureteral orifices or one ectopic ureter
- 9) Histologic section of the supposed renal mass reveals glomeruli and tubules, showing arrest in development of renal organ.

Congenital Absence of One Kidney

No evidence of hypoplastic or aplastic renal tissue.

In renal hypoplasia the ureter is usually patent and the excretory function of the infantile organ is present to some extent. Yet this small kidney is incapable of sustaining life by undergoing compensatory hypertrophy should disease or injury incapacitate its mate on the opposite side.

It is to be remembered that the hypoplastic kidney, like all congenital renal malformations, is more likely to develop secondary diseases, particularly calculi and infection, than is the normal organ.

The principal symptom of renal hypoplasia is persistent pain in the lumbar region. However, in some cases hypertension may be the only abnormal finding which in turn produces its own clinical syndrome.

Diagnostic Procedures

The diagnosis is made by functional studies and by roentgenography. The hypoplastic kidney will invariably show diminished function both by divided renal function tests and upon intravenous urography. But retrograde pyelography will reveal the true nature of the deformity by showing a very small pelvis with absent calyces or, if it is type b, there will be seen a large, hydronephrotic pelvis with tiny renal shadow. The hypoplastic kidney usually lies lower than normal and close to the spine.

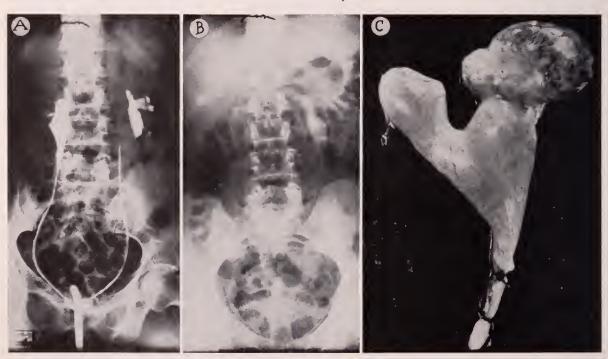


Fig. 1. A, Retrograde pyelogram shows bizarre right kidney with pelvis which is anterior and hydonephrotic; it is lower than normal and close to spine. B, intravenous urogram reveals almost complete absence of function in hypoplastic right kidney whereas function of left kidney is excellent. C, hypoplastic kidney weighs 7.6 gm. with deformed, hydronephrotic pelvis.

Renal hypoplasia should be differentiated from chronic atrophic pyelonephritis, if possible. But as stated previously, this differentiation may be extremely difficult particularly if infection has been present previously. Yet the irregular and contracted minor calyces may be in marked contrast with the smooth diminutive internal architecture of the true congenital, hypoplastic organ.

The treatment for renal hypoplasia is nephrectomy after it has been established that the other kidney has a satisfactory function.

Case Reports

Case 1. A woman aged 51 was first seen on May 3, 1956 complaining of a burning pain across her back, particularly on the right side, associated with dysuria and frequency. The symptoms had been present for about one year. She had consulted several physicians for this condition all of whom found pus and blood cells in the urine. One of them made an intravenous pyelogram which indicated that the right kidney was functionless. At this point she presented herself for complete urological investigation.

Physical examination revealed that the patient was of small stature yet healthy in general appearance. There was definite tenderness at the right costovertebral angle. A catheterized specimen of urine contained an appreciable number of pus and blood cells. Routine laboratory blood studies were normal. The nonprotein nitrogen was 35 mg, per cent. The blood pressure was 140 over 80.

Cystoscopy

Cystoscopy and retrograde pyelography revealed the pelvis of the right kidney to be anterior and hydronephrotic. There was blunting of the visualized calyces. The kidney outline was not discernible. The left kidney appeared essentially normal except that the pelvis was somewhat anterior in position (fig. 1, A).

Intravenous urograms revealed almost complete absence of function in the right kidney whereas there was excellent function in the left kidney (fig. 1, B).

Operation (May 10, 1956): Under spinal anesthesia a right lumbar incision was made and a very small kidney about the size of a plum was found with a large pelvis attached which blended into a dilated, thickened ureter. There was no

definite pedicle to the miniature kidney, the blood supply consisting of several thread-like vessels attached to the organ in an unnatural manner. These vessels were ligated and divided and the pelvis was dissected free of adhesions, the miniature kidney with enlarged pelvis being removed with most of ureter.

The convalescence was uneventful and satisfactory. She left the hospital on the thirteenth postoperative day.

Following the operation she has enjoyed excellent health and has been completely relieved of the former painful symptoms.

Pathological report: "The specimen consists of a right kidney which weighs 7.6 gm, and measures 3 cm, from pole to pole (fig. 1, C). The capsule of the kidney strips with ease revealing a pale gray, smooth surface. The cut surface shows a renal pattern."

Microscopic examination: "The sections from the kidney show a relatively normal histological pattern with considerable hypoplasia of the glomeruli." Diagnosis: "Congenital hypoplasia of the right kidney (fig. 2)."

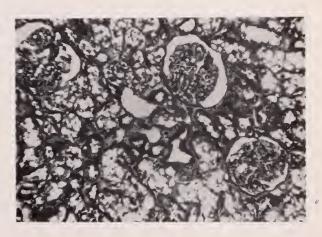


Fig. 2. Photomicrograph shows hypoplasia of glomeruli.

Case Two

Case 2. A boy aged 4 complained of a painful mass in the right lower quadrant of the abdomen. Exploratory operation by a general surgeon revealed a large, dilated, tortuous ureter. A tube was inserted in the ureter, and he was referred for urological attention.

Dye was injected through this tube in the right flank and the right kidney was seen to be small and hypoplastic with poorly developed calyces and a thin parenchyma. There was marked dilatation of the right kidney pelvis and of the right ureter (fig. 3, A).





Fig. 3. A, Pyeloureterogram made by injecting tube in right ureter shows small kidney with marked dilatation of pelvis and ureter. B, small hypoplastic kidney weighs 25 gm. Note marked dilatation of pelvis and ureter.

Intravenous urography disclosed normal function of the left kidney whereas no dye was visualized on the right side, after 20 minutes. The blood chemistry was normal.

Operation

Operation (May 18, 1957): Under ether anesthesia, right nephrectomy was performed. The kidney was found to be very small to which was attached a very large pelvis and a dilated ureter. One month alter the remaining ureter was completely removed through a midline incision. Six months after the last operation the child was seen to be healthy in appearance and without complaint. The urine was clear.

Pathological report: "The specimen consists of the right kidney with renal pelvis and ureter (fig. 3, B). The kidney measures 5 cm. in greatest diameter and weighing 25 gm. The ureter is dilated to a width of 2 cm. The serosa is covered with fibrous tags. Upon sectioning, the renal cortex is atrophic."

Microscopic examination: "The sections show that the renal cortex is atrophic. Nearly all the glomeruli are hyalinized. The interstitial tissue is

heavily infiltrated with lymphocytes and plasma cells. The arteries are thickened and narrow. The ureter shows a heavy lymphocytic infiltration beneath the epithelium." Diagnosis: "Congenital hypoplasia of the right kidney with hydronephrosis and hydroureter."

Mills Building.

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CORTISONE

Cortisone In Urological Conditions With A Report Of A Trial In Interstitial Cystitis

Hoyt, H. S., J. Urol. 67:899, 1952

No definite conclusions could be reached but the author mentions an interesting point. Delayed wound healing caused by cortisone can apparently be prevented by increasing the patient's protein intake and by administration of testosterone. The latter substance offsets, to some extent, the catabolic effect of the adrenocortical hormone. (Kinsell & Margen: Unpublished data.)

Dr. A. R. Clauser of Albuquerque Named President Of Southwestern Medical Association



Dr. Clauser

Dr. A. R. Clauser of Albuquerque, was elected President of the Southwestern Medical Association at its annual meeting in Tucson, Oct. 23, through 25. The retiring President was Dr. Louis G. Jekel of Phoenix.

Other new officers are Dr. Russell L. Deter, El Paso, President-Elect; Dr. H. D. Cogswell, Tucson, Vice-President; Dr. M. D. Thomas, El Paso, Secretary-Treasurer. Members of the Executive Committee are Dr. E. W. Lander, Roswell; Dr. David Rusek, Chihuahua City; Dr. John H. Dettweiler, Albuquerque; Dr. James Fritz, Tucson; Dr. Louis G. Jekel, Phoenix, and Dr. Louis W. Breck, El Paso.

Roswell was selected as site for the 1959 meeting. The date is to be announced.

Speakers Listed

Speakers at the Tucson meeting were:

Dr. John L. Brewer, Professor of Gynecology and Obstetrics at Northwestern University; Dr. George C. Andrews, Consulting Dermatologist to Columbia-Presbyterian Medical Center in New York; Dr. John W. Henderson, Associate Professor of Ophthalmology at the Mayo Foundation in Rochester, Minnesota; Dr. Robert M. Zollinger, Professor and Chairman of the Department of Surgery at Ohio State University; Dr. Reginald H. Smart, Clinical Professor of Medicine at the University of Southern California; Dr. John R.

Schenken, Professor of Pathology at the University of Nebraska; and Dr. Robert H. Lennox, Associate Professor of Pediatrics at Tulane University.

General chairmen for the meeting were Dr. Leo Kent and Dr. H. D. Cogswell, both of Tucson. Mrs. James N. Lane was general chairman of the Women's Convention Committee.

Social Events

Social events included a chuckwagon dinner at the Saddle and Surrey Guest Ranch, a cocktail hour in the Bamboo Room of the Pioneer Hotel hosted by Southwestern Surgical Supply Co., and the President's Dinner in the ballroom of the Pioneer Hotel. Providing entertainment at the President's Dinner were the nationally-famous Tucson Boys' Choir and an orchestra composed entirely of Tucson physicians as follows: Dr. Sherwood Burr, Dr. H. D. Cogswell, Dr. Harold Rosanke, Dr. Lewis Young, Dr. Wright Cortner, Dr. Wesley Soland, and Dr. S. V. Hilts.

Born in Bridgewater, S. D., Dr. Clauser received his B. S. from the University of South Dakota and his M. D. from Loyola University. He interned at Ancker Hospital in St. Paul and then practiced medicine in Canistota, S. D., for four years. In 1932 he was appointed the physician at a Madrid, N. M., coal mine. He then took a course in public health at the University of Michigan Medical School, receiving his M. S.

MEETINGS

DECEMBER, 1958 705

in public health, and in 1940 was appointed District Health Officer in Albuquerque with the State Public Health Department.

Emerges as Major

In 1942 Dr. Clauser entered the Medical Corps, served for four years and emerged with the rank of major. He next took postgraduate work in obstetrics at Tufts University School of Medicine before entering general practice in Albuquerque in late 1946.

Dr. Clauser is a past president of the New Mexico Public Health Association and a past president of the Southwestern Presbyterian Hospital staff in Albuquerque. He is a member of the Rotary Club, the First Congregational Church and the Masons. His hobbies are golf, three-dimensional photography and stereophonic music.

Dr. and Mrs. Clauser reside at 921 Avenida Del Sol NE in Albuquerque. His office is located in the Medical Arts Square. The Clausers have a son, Gerald, who is taking a pre-medicine course at the University of South Dakota.

Texas County Medical Officers Meet in Austin

One of the three major meetings held annually by the Texas Medical Association is scheduled for Jan. 24, in Austin.

It is the Conference of County Medical Society Officials and the Symposium on Legislation.

Specifically designed to help county medical society presidents, presidents-elect, secretaries, executive secretaries, delegates, and legislative chairmen to increase effectiveness of their work, the meeting is open to any other doctors who may wish to have the opportunity of hearing the outstanding speakers and attending the practical work sessions.

This coming year's program includes such formidable guest speakers as: Ernest B. Howard, M.D., Chicago, Assistant Executive Vice-President of the American Medical Association; The Honorable Allan Shivers, ex-governor of Texas; Donald E. Stubbs, M.D., Washington, D.C., Chairman of the Blue Shield Commission; and Congressman Frank Ikard, Wichita Falls, Representative from the Thirteenth Congressional District.

Other prominent persons on the program will be John McDonald, M.D., area representative for the A.M.A. Committee on Legislation; Philip R. Overton, Austin, General Counsel of the Texas Medical Association; Milford O. Rouse, M.D., Dallas, Chairman of the Texas Delegates of the A.M.A.; and James D. Murphy, M.D., Fort Worth, vice speaker of the TMA House of Delegates.

Many of the TMA's committees and councils will be meeting in conjunction with the conference on Saturday. On Sunday, a meeting of the TMA Executive Council will be held.

Last year's meeting attracted 480 persons. The day-long activity will be held at the Texas Medical Association's Headquarters Building, 1801 N. Lamar, Austin.

Scintiscanning Course Scheduled at Oak Ridge

The Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn., has announced that it will conduct a three-day course in scintiscanning Jan. 14-16, 1959.

The course will be an advanced review of the basic techniques as applied to the problems of radiation scanning; it will include lectures, demonstrations, and laboratory sessions, with stress placed on clinical applications, but without utilizing live clinical material. A maximum of twenty participants will be accepted from among medical doctors, their technicians, and paramedical personnel who are already engaged in doing scintiscans.

Thirty-Bed Hospital

The seanning course will be presented by the ORINS Medical Division, which maintains a thirty-bed medical research hospital, with associated research facilities, in Oak Ridge, under contract with the US Atomic Energy Commission. The Medical Division's primary concerns are with the uses of radioisotopes and radiation in medical diagnosis and therapy, mainly in the field of cancer and allied diseases.

The cost of this course will be borne under the ORINS contract with the Atomic Energy Commission; however, a nominal fee of \$25 will be charged each participant, payable on the first day of the course. Applications for participation will be accepted through Jan. 2.

Additional information and application blanks are available on request from William D. Jones, Medical Division, Oak Ridge Institute of Nuclear Studies, P. O. Box 117, Oak Ridge, Tenn.

Photographic Report of the Southwestern Medical Association Meeting in Tucson, Oct. 23-25



Among new officers of the Southwestern Medical Association are, left to right, Dr. Louis G. Jekel, Phoenix, retiring president of the association and new member of the executive committee, Dr. John Dettweiler, Albuquerque, executive committee and past president of the Association, Dr. Louis W. Breck, El Paso, managing editor of SOUTHWESTERN MEDICINE and member of the executive committee, Dr. M. D. Thomas, El Paso, secretary-treasurer, and Dr. Russell L. Deter, El Paso, president-elect.

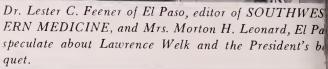
Below shown at one of the luncheon round table meetings are Dr. James W. Fritz Tucson Dr.

Below, shown at one of the luncheon round table meetings, are Dr. James W. Fritz, Tucson, Dr. D. Griess, Tucson, Dr. Robert Zollinger, speaker, Dr. H. D. Cogswell, Tucson, co-chairman for the meeting and new Association vice-president, and Dr. Russell L. Deter, El Paso, president-elect.





Left to right at a round table luncheon are Dr. John R. Schenken, a speaker, Dr. John I. Brewer, also one of the speakers, and Dr. George Fraser, Tucson.





Dr. V. C. Laughlin, a visitor from Cleveland, right, chats with Dr. John W. Magee of Tucson.



Dr. Hugh Thompson, Tucson pediatrician, left, and E Harry Thompson, Tucson internist, get together. The Di Thompson are no relation to each other.

Mrs. Ira Budwig of El Paso, left, and Mrs. W. A. Soland, Tucson, take a look at the program for doctor's wives.

Dr. John W. Henderson, a speaker, left, and Dr. Sherwood Burr, Tucson, take part in one of the round table luncheon Dr. Burr is president of the Arizona Opthalmological S ciety.





Or. C. E. Molholm, Albuquerque, left, and Chris Chrisopherson, Los Angeles, E. R. Squibb and Sons, discuss a product.



Dr. M. Chappell, Tucson, right, and Carl Anderson, Phoenix, Parke, Davis & Co.



Left to right, Dr. James Calkins, Tucson, Ray Hayden, Phoenix, and Jim Groover, Tucson, both of Burroughs Wellcome & Co.



Ade Abbott, Tucson, manager of the booming downtown development program in Tucson and a former buyer in the pharmaceutical business, visits with L. A. Roy, San Diego, Upjohn Co.

Harold D. Wilson, Tucson, left, and A. K. Hansen, son, G. D. Searle & Co.

Dr. Hervey W. Dietrich, El Paso, left, and Mr. and Mrs Harold "Wally" Walsdorf of Mission Pharmacal Co.





Editors, Bless 'Em

The Presidential Address at the Annual Meeting of the Southwestern Medical Association October 23, 1958, in Tucson

By Louis G. Jekel, M. D., Phoenix

In the world of medical literature there is a battle being waged. It has been going on for years. It is the struggle between you the editor, on one hand, and you the author on the other. I say you the editor and you the author because I know that in this audience today there are a goodly number of persons who serve as medical editors in one way or another, and a larger number of persons who are medical writers at one time or another. Furthermore some of you act frequently and infrequently in both capacities. You are not strangers to the matter at hand.

In this struggle between the editors and the authors I am going to be foolish enough to try to act as a mediator. I have known the anguish of having articles of mine rejected or sent back for revision. Also I have gnashed my teeth over papers which in my opinion as an editor were totally unacceptable for publication. I think I understand some of the problems involved.

I know that no author likes to have his article rejected or cut to pieces so that he himself can hardly recognize it. I know also that no editor likes to reject or radically revise articles. In my wanderings today in this No Man's Land between editor and author I hope to point out faults on both sides. By this I do not mean to call down "a curse on both your houses."

Rather I hope to be able to tell why the editor has to do the things he does, and why the author feels the way he does. I hope to be able to help the editor place himself in the position of the author, and to help the author place himself in the position of the editor. I hope to be able to point out some things that each might do to improve matters, and in this manner I hope to help in some small way to resolve this conflict which has been going on for so long and which seems to be never-ending.

Editors are not perfect. In this statement I include not only the doctors who act as part-time medical editors, but also the professional journa-

lists. Members of the latter group are frequently invited to criticize medical writings and medical editing. They are usually merciless, though just.

Certainly they are right in most cases, but lest they feel that they themselves are above reproach, let them read this statement which is taken from the columns of a daily newspaper in Arizona.

"Vincent Bordes, who his physician unsuccessfully sought last week to admit to a Phoenix hospital but found all crowded, now is a patient at St. Monica's, the physician said yesterday." (Arizona Republic, Feb. 19, 1948.)

These professional journalists chide us frequently on our use or misuse of words. Yet there is no unanimity of opinion in many of these cases. For instance, I recall hearing in a lecture on this subject that one of the worst habits a writer can develop is the use of negative constructions such as "not infrequently."

Yet, not an hour later I found this statement written: "... acquirements of the art of using words may be fundamental to one's growth and development—perhaps almost as fundamental as, and not unrelated to, the establishment of handedness." And by whom was this written? It was written by Richard M. Hewitt, Senior Consultant, Section of Publications, Mayo Clinic; Assistant Professor of Medical Literature, Mayo Foundation. There is much personal opinion in these matters.

Personally, I find these negative constructions very useful at times, and not undesirable. They are useful in expressing shades of meaning. "Not dark", for example, does not mean "light"; rather it means something between dark and light. Of course there are other means of expressing such thoughts, but I insist that at times negative constructions are not inferior to others.

Some, perhaps much medical editing is done by non-medical people. These people are usually well informed and practically always excellent journalists. Nevertheless their lack of medical training sometimes causes them to make mistakes. Well do I remember writing once on the treatment of plantar warts with superficial x-ray therapy. I stated the dosage and listed the exact factors used, which one must always do when one is describing x-ray treatments.

The editor, however, apparently thought I was being too verbose in listing the KVP, the m.a., the TSD, and the HVL. The editor, who I am sure knows little or nothing about x-ray therapy, deleted all my factors and left me in a somewhat difficult position inasmuch as the use of my set of factors was essential if one were to use my dosage.

Admitting then that the editor has shortcomings, let me hasten to come to his defense by telling you that his shortcomings are much fewer and less important than his virtues. He can and does help the author. In his journal he will inform writers as to the style of writing used in the journal, the length of papers usually acceptable, the preparation of diagrams, the use of photographs, and the use of references and footnotes.

He will furnish proofs and help the author with his proof-reading. He will inform the author about his policies with regard to reprints. All of these things he will do in advance so that there can be no misunderstanding.

Whenever possible the editor will permit the author to employ his own style. He will not "change bad English and good medicine into good English and bad medicine." He will be honest and frank in his editing and will try to maintain friendly relations with his authors. I repeat, the editor can be and often is of great assistance to the author.

If the editors have shortcomings the authors have more. Too often papers are submitted that are not suitable for publication. The material may be unworthy, or as often happens may be submitted to the wrong journal. The writing is bad. Organization is poor or lacking, obviously due to lack of proper outlining. Paragraphs and sentences are constructed badly. Sometimes there is bad punctuation and incorrect spelling.

There are times when these papers show very poor preparation and lack of real effort on the

part of the author. In some such cases one cannot blame the editor for throwing up his hands in horror and promptly issuing a rejection slip. After all, one should not expect the editor to write the paper for him regardless of how good an idea he may have had.

Just as there are certain things that the editor can do to improve matters, so are there a number of things that the author can do to help attain the same goal.

One broad statement can cover the entire matter of what the author can do to help: he can try to write well.

When a person sets out to write an article he may well first ask himself certain questions. Why is he writing this paper? He should have something to say, a message to deliver. If he has nothing to say, let him refrain from writing. Will his writing be understood? Or misunderstood?

The subject certainly should be addressed to readers who can understand it, and of course, it must be written in an understandable manner. Will his writing be read? I am sure all authors hope their material will be read.

But if there is no chance for it to be read perhaps it should not be written, although there is some justification in writing just for the sake of expressing ideas and thoughts irrespective of readers.

Having then asked himself these questions, and having come to the conclusion that he has a message, that someone will read it, that most readers will understand it and only a few will misunderstand it, the author may thereby have fulfilled the first requisite of good writing: justification in writing what he writes.

Having justified himself the author then should follow certain procedures. As a medical writer he must recognize his status as an amateur and be humble in his approach to the matter. He must learn the rules of good writing and respect them.

He certainly should put forth his very best efforts. He must strive to achieve simplicity and brevity. And finally, in writing as in all other matters, he must be strictly truthful and honest.

In his efforts to produce the best possible paper the author must re-read, revise, and re-read again. Most authorities agree that the act of revising should extend through a period of time: days, weeks, or even months.

Revision is necessary to correct ordinary errors in punctuation, to justify the use of conjunctions, interjections, and relative pronouns, and to avoid the inconsistent use of capitals, italics, and subheadings.

In addition revision must be made to assure proper organization of material and clearness of paragraphs and sentences, to avoid repetition, and to strive for smoothness.

Unnecessary words must be removed. The summary must be a real summary, a true recapitulation of the important points in the paper. Finally, and perhaps most important of all, review and revision should be made to assure complete truth and accuracy.

Somewhere the editor and author must have a meeting of minds. Although their views may be divergent they need not be disparate. Compromise is always possible.

Each principal must make an effort to place himself in the position of the other and try to see the problem from all angles. Each must do his own job as well as he can. And each must respect the rights, duties, obligations, and responsibilities of the other. Then both may profit.

Each has great responsibilities—the editor greater, probably, than the writer. It is the duty of the editor to determine the suitability of an article for his journal. How an editor reacts to the material presented to him depends to a large extent on his own personal feelings and opinions, ideas, background, training, likes and dislikes. Also each journal has its own style and format.

Although this is largely the doing of the editor, it must nevertheless, for the sake of uniformity, be adhered to in that journal. Different journals, of course, have different styles. Therefore an article may be suitable for one journal and not for another. The editor is well aware of this. The writer should bear it in mind.

Because each journal must adhere more or less to a certain style, the editor may find it impossible to accept a paper in its original form. In such a case he may suggest changes. Most frequently these suggestions would have to do with the length of the article. Most papers are too long. If the author is willing to make such changes the editor may accept the paper as amended.

On the other hand, the author may be unwilling to make any changes. Of course he does not have to make changes, but neither does the editor have to publish the paper. Sometimes a compromise can be worked out whereby the author will agree to certain changes and the editor will agree to permit certain other things to remain unchanged.

If they fail to find an area of agreement the next move is for the author to submit his paper to some other journal and editor. This, of course, is often done.

The struggle goes on and undoubtedly will continue to go on. It would be well if it were not a struggle between the author and the editor, but rather one in which both the author and the editor would be on the same side striving to advance the science of medicine by improving the quality of the literary output of the profession.

I believe, and this I am sorry to say, that the medical author does not strive as hard for the upgrading of the product as does the editor. It is the one great goal of the latter. He wants his journal to be top-ranking and he is not to be blamed for that attitude. He wants only the best material for his journal.

He will do everything he can to attain that end, and in the final analysis he has the last word. He is the boss, and the writer must bear that fact in mind.

But remember, editors are not against authors. Editors are for themselves and their journals. They believe that what is good for them is usually good also for the writers. I agree.

So really both writers and editors are striving for what they think is right, and they both are, or at least should be, reaching for the same goal. They must co-operate. They usually do.

I like authors. I hope every one of them may find his ideal editor.

Furthermore, I like editors, bless 'em. May they rest in peace.

A Summary Report on

CORTROPHIN®ZINC

(Corticotropin-Alpha Zinc Hydroxide)

Description: A unique patented electrolytic process (developed by Organon research) produces a complex of *alpha* zinc hydroxide and corticotropin. This complex offers considerable advantages for practical ACTH therapy.

Characteristics: New Cortrophin-Zinc provides corticotropin of unsurpassed purity with low foreign protein content. This reduces the risk of sensitization reactions.

Since about 5% of the corticotropin is uncombined, onset of clinical response is rapid. But the balance, present as a complex of alpha zinc hydroxide, provides a prolonged action so that the effective time span of a single dose is usually several days. Injection of the new electrolytic Cortrophin-Zinc is virtually painless.

Pharmacology: A potent stimulator of cortical activity, Cortrophin-Zinc does not depress functioning of the suprarenal glands. Unlike the corticosteroids, adrenocorticotropic hormone arouses the adrenal glands to produce natural steroids in natural proportions. In a 5-year study of patients on ACTH therapy, no case of adrenal or pituitary depression or atrophy has been observed. Because Cortrophin-Zinc is virtually painless on injection and its prolonged action obviates frequent injections, it is now practicable to use Cortrophin-Zinc in most of the indications where formerly reliance has been on corticosteroids. This freedom from apprehension of deleterious depressive effects permits clinical use of valuable hormone therapy on a broader scale than has been possible heretofore.

Clinical Uses and Dosage: The many published reports on the use of Cortrophin-Zinc as well as ACTH, in thousands of patients indicate its value in over 100 disorders. Most responsive have been: allergies and hypersensitivities, rheumatoid arthritis, bronchial asthma, serum sickness and inflammatory skin and eye diseases.

Dosage should be individualized, but generally initial control of symptoms is obtained with a single injection of 40 units of Cortrophin-Zinc daily, until control is evident. Maintenance dosage is generally 20 units (or less) twice a week.

Use of Cortrophin-Zinc with oral steroids is now recommended as a safety measure to supply the important suprarenal stimulation and lessen the hazard of atrophy. Periodic use of Cortrophin-Zinc is advocated with all steroid analogs, such as cortisone, hydrocortisone, prednisone, prednisolone, methylprednisone, and triamcinolone.*

Supply: 5-cc vials containing 40 and 20 U.S.P. units of corticotropin per cc; 1-cc ampuls containing 40 and 20 U.S.P. units of corticotropin, with sterile disposable syringes.

*Write for complete literature and bibliography containing specific dosage schedules to:

Medical Department

ORGANON INC. · Orange, N. J.

MONTHLY CLINICAL PATHOLOGICAL CONFERENCE EL PASO GENERAL HOSPITAL

September 18, 1958

FREDERICK P. BORNSTEIN, M. D.—Editor—Case No. 1060 Presentation of case by Dr. Jack Postlewaite

History:-Dr. Nathan Kleban:

A 53-year-old negro housewife was admitted to the hospital on May 15, 1958. For two weeks the patient was unable to eat, bled from her rectum and vomited blood before admission. Another history recorded the rectal passage of dark blood and liquid stools without abdominal pain. The medical consultant's note stated that there had been dark, loose, foul-smelling stools of tarry consistency.

The patient had two children. Menstrual flow had stopped about 1948. Total hysterectomy, bilateral salpingo-oophorectomy and appendectomy was performed in another hospital in March, 1953. A doctor had treated her for hypertension.

Father and mother were dead of unrecorded cause.

Physical Examination:

T. 99 P. 98 R. 24 B. P. 138/80.

The patient showed slight confusion. She was obese. The cardiac PMI was in the left sixth intercostal space. There was epigastric tenderness with radiation to the right lower abdominal quadrant. No masses were felt on digital rectal examination.

Hospital Course:

When she reached the ward the patient complained of abdominal pain. Hematocrit was 14 volume per cent, hemogloblin 4.8 grams per cent; WBC 11,600; segs. 85 and lymphs. 15. Hematocrit rose to 23 after two units of whole blood. Urine was straw in color, acid, cloudy, 1.013, albumin 1+, sugar negative, loaded with pus cells and WBC clumps.

The patient was given a Sippy diet, reserpine, vitamin K, Andrenosem, antacid, and Gelfoam powder dissolved in milk.

Duodenal ulcer niche and gastro-duodenitis were reported following an upper GI series on the second day. Two additional units of blood raised the hematocrit to 30. Temperature rose to 100 on the second and third days but did not exceed 99 again until the day before death. Recorded blood pressures ranged from 142 to 220 systolic and 90 to 120 diastolic. On the third day the fifth and sixth units of whole blood raised the hematocrit to 39. Nurses' notes said that the patient was restless, moaned and groaned, complained of weakness and hunger. Small emesis occurred once.

Bland Diet

Diet was changed to bland on the fourth day. Kaopectate with Neomycin was prescribed because of 11 loose stools. On the following day the patient felt better, had only one small dark brown liquid stool. Hematocrit was 41 the next morning, the sixth day, when a soap suds enema returned small particles of green fecal matter having a foul odor. Tap water enemas were then given until returns were clear in preparation for sigmoidoscopy. A cause for rectal bleeding was not seen during the examination. Additional tap water enemas were given that night in preparation for a barium enema. This was followed by rectal bleeding.

No defects were seen with barium enema up to the recto-sigmoid. Satisfactory visualization beyond that point was not obtained because the patient was unable to retain the barium. APC tablets were prescribed for pain.

The next morning, the eighth day, the patient refused breakfast, was restless and uncooperative, later was listless and somnolent. Hematocrit was 38; WBC 16,300: seg. 81, stabs. 1, lymphs. 8, eosinophils 1 (only 91 cells reported). Scheduled surgery was cancelled.

Patient Restless

On the ninth day the patient was again restless, uncooperative, insisted on going to the bathroom. began scratching her buttocks and rectum, Sparine was administered and her hands were restrained. A small amount of rectal bleeding was noted. Oral intake was poor and continued so. Sitz bath was given the next day for apparent infection around the rectum. Urine was yellow, clear, acid, 1.013, albumin 2+, sugar negative, WBC too numerous to count, rare hyaline cast. Sparine was again given for restlessness. Later the patient was stuporous but shouted and yelled at intervals. Uremic frost was noted by the nursing staff.

Normal saline soaks were applied to the rectum, from which there was foul drainage. Coma succeeded stupor. Rectal temperature rose to 105. A portable chest X-ray picture was interpreted as demonstrating clear lung fields, cardiac enlargement with prominence of left ventricular segment, and elongation, tortuosity and dilatation of the aorta. Conclusion was findings consistent with arteriosclerotic and hypertensive cardiovascular disease. An accompanying aneurysm of the aorta cannot be excluded. Serological test for syphilis was negative. 2500 cc. of 5 per cent glucose/D.W. was given I. V. Blood pressure dropped to 138/70. A foul smelling fluid drained from her mouth.

Nitrogen Rises

Blood urea nitrogen rose from 50 to 71. Non-protein nitrogen was 130. Other chemistries reported calcium 7.3 mg. per cent, CO₂ capacity 22.7 mEq/L; chlorides 160 mEq/L; potassium 9.0 mEq/L; sodium 191 mEq/L. Hematocrit was 37.

There was involuntary stool, later rectal passage of what seemed to be old blood. Brown liquid material was vomited and suctioned. Shock persisted. Respirations were labored, then gasping and Cheyne-Stokes in pattern. Urine output was 500 cc. on the day before death, 150 cc. on the last day. No fluid was given. Nurses' notes described the patient as appearing dehydrated. A pericardial rub was heard. Death occurred 11½ days after admission.

Clinical Discussion-Dr. Jack Postlewaite:

It seems to me that we are dealing with a problem that has been solved already on paper. Evaluating this problem is merely trying to bring out the more cryptic, esoteric diagnoses that are famous at this institution. We are now in a position to make a diagnosis because we are not only unlimited in my personal imagination but the history and physical contribute nothing. So we will proceed with the esoteric diagnoses.

This should in all due respect be nothing more than a colored woman who had symptoms of a duodenal ulcer. She bled both directions, orally and rectally. She was a known hypertensive, she had renal disease which terminated in uremia. Her demise was due to uremia with potassium retention. Obviously we will have to find something more interesting than this sort of classical situation to account for our findings.

She is 53 years old. She is a colored female. Therefore, we ought to talk about sickle cell anemia. They do bleed. The patient was confused throughout her clinical history. Something was wrong with her head but we could not account for it on admission. She had 4.8 grams hemoglobin and a hematocrit of 14. The white count wasn't particularly significant, nor the differential, 85 per cent polys and 15 per cent lymphs. She was slightly febrile and dehydrated.

On admission she apparently had evidence at least suggesting rectal bleeding and the history stated oral. It was painless abdominal bleeding. One of the conditions, which lead to fatal termination and which are hard to discover clinically, is pancreatitis; but it is associated with painful, not painless, bleeding. I don't recall pancreatitis ever being painless. Except on examination did this lady have pain and remember she was confused, so her history may not be entirely reliable? This pain was epigastric relating to the right lower quadrant.

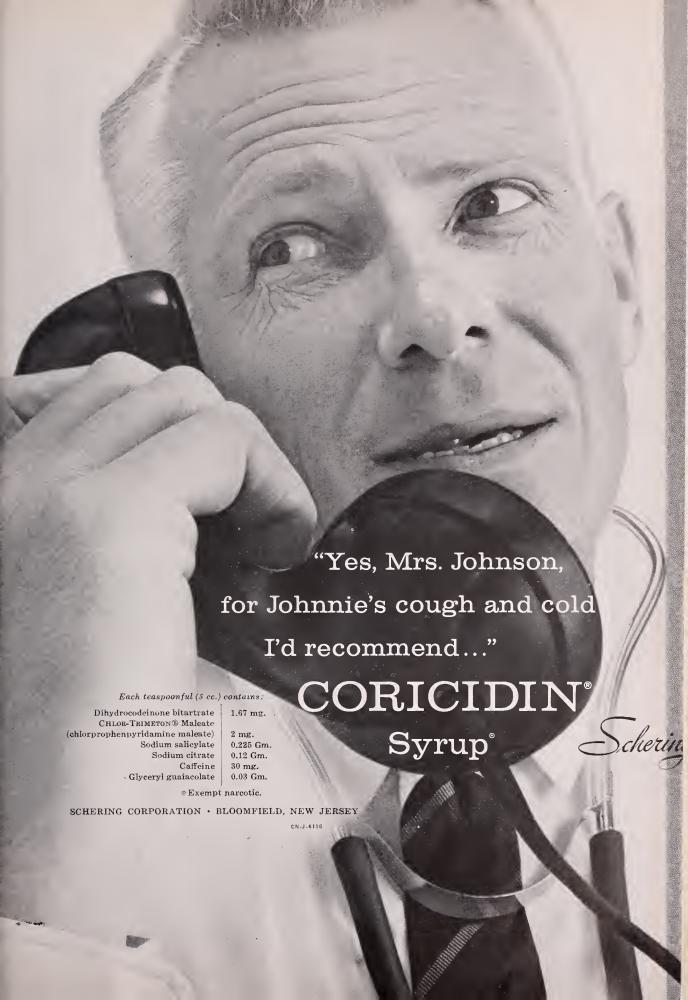
She had nothing of importance on history other than hypertension. On laboratory studies the anemia was apparent. Replacement apparently did considerable good because she doubled her hematocrit with two transfusions. The urinalysis: The specific gravity on two occasions—this lady was apparently repeatedly dehydrated—was 1.013. Albumin one and two plus and loaded with pus cells. On one occasion a few hyaline casts were found. Now this adds to our renal picture.

Progressive Uremia

At least on admission one wants to know why the amount of pus in the urine until you get on with the story and discover that she develops a progressive uremia. The blood urea nitrogen started somewhere around 50 and ended up to 71 mg. per cent. The NPN is reported 130. The other interesting phenomenon is the evaluation of the white count which goes with the gastro-intestinal bleeding.

She also developed this weird and complex electrolyte picture which may be due to replacement plus retention. Nevertheless we are told she had a potassium of 9 mEq/L. The other interesting finding is the blood calcium of seven mg. per cent.

Now to evaluate this complexity of history physical and laboratory data; The woman took 12 days approximately to die. She apparently died of a terminal uremia. She had some sort of a bowel



disorder manifesting itself in GI bleeding, oral and rectal. She also had a diarrhea for which she received antibiotics. It is interesting we don't know more about the stool, perhaps a clue would have been obtained from its study.

Major Categories

We then should approach the problem by trying to see how these facts fit in with the major categories of pathology that we see as clinicians.

First, infection. One can't account for this entire problem on the basis of infection, but certain organs certainly show a response to infection or irritation, such as the kidney and the GI tract. I suppose an ulcer is an inflammatory process as well as a degenerative disease. There is a vascular element. Ulcers have an inflamed wall and the ulcer that penetrates may perforate. It is unusual for the GI system to develop diarrhea, bleeding and and so forth and not show a good deal of pus. I don't think it is an inflammatory GI lesion. She is hypertensive. I don't know of any illness here that should be inflammatory. Her cerebral symptoms are secondary to her general body debility.

Degenerative: Does she have an aneurysm? Well, a hypertensive patient has at least an altered blood vessel wall. There is nothing inflammatory here. Her serology is negative and I don't see that the circulatory system could be incriminated on an inflammatory basis but it may well be on a degenerative basis. She is entitled to a dissecting aneurysm. There is no reason why some of the blood couldn't have been lost by dissection, and perhaps this cut off her renal system. Perhaps this also gave her alteration of the central nervous system.

Possible Shrunken Kidney

It may be this kidney is nothing more than a shrunken kidney. It would be pyelonephritis which is certainly by far the most common chronic disease of females. It could be the arteriolitis groups, nephroarteriosclerosis because she is a chronic hypertensive. Thus her uremia was tipped over when she developed her GI hemorrhage with re-absorbed blood, etc. So the degenerative diseases are important in this case.

Neoplastic: I am sorry we have no way of going after that. It does take tissue to make that diagnosis, at least some kind of a shadow that is suspicious, so that we will dispense with neoplastic diseases although the possibility exists. Metabolic processes are involved, and those are the natural

consequences of aging. There is no evidence to consider diabetes. At least we see no sugar. She is obese and it makes one wonder if it wasn't some sort of apoplectic process of the pancreas, etc. I don't know why they did a calcium on her other than that she was uremic. This is a good investigation for all the things that go wrong in uremia. Now the other classifications of trauma and congenital disease are out.

Positive Findings

On analysis of the positive findings this problem fits best our degenerative types of disease. Degeneration and necrosis are like processes, or steps from one to the other. One can throw in a weird disease which I enjoy doing before this group, the collagen group. She has got the multiple systems involved.

There is nothing to suggest that her hypertension contributed to this demise. There is nothing to be sure of other than the X-ray saying a niche in the duodenum suggested an ulcer. Is this the only source of GI bleeding? There is a great deal of evidence of sigmoidoscopic examination that she doesn't have any diffuse bleeding.

She does not have an ulcerative colitis or diffuse hemorrhagic colitis. So one might consider then some fulminating degenerative process, collagen group, affecting kidneys, bowel, vascular tree, sensorium, etc. But I have no clue to this and there is no tissue which was studied including blood and bone marrow. It seems then we will resort back to the simple diagnosis, she had an ulcer, she was not uremic on admission, she bled, vomited blood, etc.

End Stage Kidney

Replacement was perfectly satisfactory but she had an end stage kidney, probably pyelonephritis. She didn't bleed again in the hospital. Transfusion was excellent. She managed to keep her blood. There was surgery planned along the way. I assume they were going in to tie off bleeders or remove ulcers or explore, and I suspect that the exploratory lap was delayed because she became critically ill again on the floor.

It occurs to me that the laparotomy might have been most revealing, that she came in with a simple ulcer, had a uremic process in progress and something of an apoplectic type happened in the hospital. Those things include myocardial infarctions. They include dissection of vessels, blown out vessels, hepato-renal syndrome, liver shut-down. We can go on with a maze of possibilities. This is a GI bleeding due to ulcer, uremia due to end stage kidneys, pyelonephritis and the terminal event was the uremia.

Dr. Bornstein:

In-asmuch as Dr. Postlewaite suggested some surgery was planned, do any of the surgeons feel that they would like to comment on the diagnosis and management of this case?

Dr. Dotson:

The reason why we postponed the operation was her condition which deteriorated rapidly. Our impression at the time was that of a peptic ulcer which we were going to treat. It seemed to me that if she recovered enough in the first few days, we felt we could explore her. Then she developed convulsions and erratic behavior and semi-stupor on the ward. We took a BUN and found it to be 70 or so. It hadn't been taken previously to that time. She went rapidly on to her demise and so far as I know it was chronic kidney failure with superimposed massive GI hemorrhage as Dr. Postlewaite suggested.

Dr. Haskell:

I was wondering about the treatment the patient was given—Sippy diet and reserpine. Do you people ever have trouble with ulcers without a previous history when you give them reserpine? It seems to me that could be contra-indicated in a case like this and also the vitamin K. Did you have any indication that she had some liver damage?

Dr. Dotson:

I think we just assumed that she had chronic kidney disease aggravated by the shock of the hemorrhage. She was not in shock on admission. Evidence of kidney disease was not suspected at all except when I saw her the day before surgery. She was exhibiting mental confusion and I noted at the time the low specific gravity of the urine. For that reason I ordered a BUN.

Dr. Licon:

Merely as a casual glance at this protocol I note that serological test for syphilis was negative.

Dr. Hassler:

The general consensus is that she died of an end stage kidney. Well, exactly what is an end

stage kidney? You mean she had a lower nephron nephrosis when she came in secondary to the shock or what?

Dr. Postlewaite:

If a man is lucky enough to live long enough with these chronic diseases, everything becomes end stage. What I had in mind, however, is the end stage as the pathologist uses the term. Having been exposed to it several years here. I use his terms more than I do mine. An end stage kidney is a small, contracted kidney. The arteriolarne-phrosclerosis, the malignant arteritides don't fall in this group. The chronic nephrosclerosis group develops small and contracted kidneys.

All inflammatory kidneys will become small and contracted when they become chronic pyelone-phritis or chronic glomerulonephritis. These are just small and contracted kidneys and they give us an awful time clinically because they become salt-losing kidneys and we are sitting here with salt restriction until the patient is rushed to the hospital because they fall on the floor every time they stand up. We think it is the reserpine, etc., which I am certain didn't do that, and so we take them off the hypotensive agents and we find out they don't have any salt left in their bodies.

They are putting out tremendous amounts of urine which they didn't do all the 10 years before we saw them, so these are salt losing kidneys, end stage, both functionally and clinically, and they may carry uremia a long time and not be tipped over into the mortal statistics until something else happens. I don't know that she is salt-losing. She certainly developed anuria. I suppose the urologist would like to add papillitis and dozens of other things that happen to kidneys that stop, but at the moment that is my answer.

Clinical Diagnosis: Bleeding peptic ulcer.

Dr. Postlewaite's Diagnosis: Chronic pyelone-phritis with uremia.

Pathological Diagnosis: Chronic pyelonephritis with uremia, and nephrolithiasis.

Pathological Discussion: Dr. Bornstein:

On autopsy there was a rather obese woman. The heart was moderately enlarged, weighing 400 grams, suggesting that there was hypertension of some duration. The stomach and duodenum were filled with large amounts of hemorrhagic fluid. Careful examination of the mucosa of the stomach and duodenum revealed numerous petechial hem-

orrhages. However, no definite ulcer or ulcer scar was demonstrable. The pancreas was not remarkable. The liver and spleen were not remarkable.

The left kidney weighed 75 grams, which is small. The right kidney weighed 120 grams which is also a small kidney. The difference in size between the two kidneys implies a pyelonephritis type of process. In addition the smaller kidney contained a large stone. The smaller kidney was finely and irregularly granular with some deeper depressions on the surface. In addition this kidney had a so-called "flea-bitten" appearance which used to be connected with the term malignant nephrosclerosis. I will talk about that term later. The two kidneys show essentially the same abnormalities.

Atrophy of Cortex

The cut surface was mainly remarkable for the atrophy of the cortex and the fact that the renal pelvis was pale and not involved in an active inflammatory process. Microscopically there was uniform and severe destruction of the renal parenchyma. The small arterioles showed the so-called onion skin pattern of obliterative arteritis. The tubules were distended and filled with inflammatory cells.

The glomeruli were not too bad. Some of them show hyalinization but the main disease process was limited to the sclerosed arterioles and the tubules which were filled with lymphocytes and plasma cells. This, then, in the true sense of the word, is the end stage kidney, chronic Bright's disease, but I think we can go a little bit further in this case in trying to explian what has happened to this kidney.

I think the chronic glomerulonephritis here is out. The kidney is a kidney which used to be called malignant nephrosclerosis which is actually a clinical term. Weiss and Parker pointed out that chronic pyelonephritis will give you a picture of where your main damage is in the tubules and in the arterial and interstitial system.

Chronic Inflammation

Any chronic inflammation, whether it is in the kidney or gall bladder or anywhere else, will be accompanied by a long standing endarteritis which we have here. You have a diffuse, far reaching destruction of both kidneys which I think is responsible for the uremia and we see very often that intestinal hemorrhages occur with a uremia.

I think essentially then this woman died with kidney failure with accompanying hemorrhages.

When Vollhard and Fahr first brought out their classification they held that the arteriolar destructive process was the primary damage in the kidney, but I think since the work of Weiss and Parker we believe much more than chronic pyelone-phritis is responsible for this type of kidney destruction. They all end up in uremia and die from uremia, and I think that is what happened here.

Dr. Licon:

Was there any syphilis in this case?

Dr. Ayub:

Can I ask why, in some of these end stages, vou have a very, very low red count and there has been no significant bleeding?

Dr. Bornstein:

There is no evidence of syphilis in this case. The question is what is the mechanism of the severe anemia in end stage kidneys and uremia. The answer is fairly simple—there doesn't seem to be any. About two years ago Limarzi from the University of Illinois published a paper on about 200 cases of uremia that were followed at the Illinois Research and Educational Hospital, with bone marrow biopsies. He came to the reluctant conclusion that he had no explanation for the mechanism of anemia in chronic nephritis and uremia.

Dr. Postlewaite:

I have got news for you. You are about two years behind. The kidney is the producer of an erythropoietic hormone.

Dr. Bornstein:

The trouble with that observation is the fact that the bone marrows don't show any depressed erythropoiesis in these cases.

Dr. Kleban:

It is true that the exact cause of anemia in uremia is not certainly known. There is at times and there has been demonstrated at times a hemolytic factor and there has also been demonstrated bone marrow depression and apparently in different instances either or both of those factors may play a part. The use of reserpine in individuals with an ulcer or gastroenteritis: Certainly this may contribute to the development or to the exacerbation of an ulcer. In this particular instance the house staff was concerned when her blood pressure became elevated.











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Her hospital course would indicate that actually she had no serious bleeding after she came to the hospital. Her hematocrit was raised to 41, remained between 37 and 41. The factor that I would like to point out has to do with what I think actually was her precipitating cause of death.

Fundamental Difficulty

I don't disagree that her kidney disease was her fundamental difficulty and that it was probably made considerably worse by the hemorrhage, with the resulting decrease in renal blood flow. In December of 1956 there was a patient presented here who had gallstone ileus with a gallstone in the ileum resulting in a mechanical obstruction and peritonitis.

In this particular case this woman was given castor oil in preparation for barium enema. Four hours later she became clammy, restless, and was given seconal. Her blood pressure at that time was 80/60. She was mentally confused, she was then given tap water enemas as further preparation for barium enema and during this process she died. The patient who is being discussed tonight actually was doing fairly well on her fifth hospital day.

On the fourth day she had diarrhea, 11 loose stools. The color was not described. On the fifth day she had one brown stool. On this day she was given enemas in preparation for sigmoidoscopy and in preparation for barium enema.

Mental Confusion

Following this there developed mental confusion. Following this there was virtually no oral intake for the remaining seven days of her life. It is my feeling that the repeated enemas that she received on this particular day apparently depleted her of fluid and electrolytes to a critical point. An individual with severe renal disease on the threshold of irreversible failure, can tolerate no further diminution of renal blood flow.

One must be careful, for example, in preparing an individual with elevated nitrogen for intravenous pyelogram. A laxative plus an enema will produce sufficient depletion of extracellular fluid to drop the effective blood flow. In turn there will be a drop of renal blood flow and this just may make sufficient difference to throw the patient into irreversible renal failure.

Dr. Bornstein:

Let me say one thing. I think when it comes to the question of anemia associated with uremia we should be careful to distinguish what is an appetizing hypothesis and what is fact. If you know that there is an erythropoietic hormone in the kidney and this is responsible, you should find a consistent bone marrow depression in uremia which you don't find.

If you assume that there is a hemolytic factor responsible for the anemia in uremia you must remember that a hemolytic anemia severe enough to do damage will show you visible hemosiderin in the spleen and in the bone marrow. You don't have it. So for the time being you have to charge this up to appetizing hypothesis. The facts that permit us to say what causes uremic anemia are not in at the present time.

Coming Meetings

Southwestern New Mexico Medical Society, Deming Country Club, Deming, N. Mex., Jan. 15, 1959.

University of Colorado Medical Center, Denver. Colo., Postgraduate Course, General Practice Review, Jan. 19-24, 1959.

American College of Surgeons, Sectional Meeting, Shamrock Hilton Hotel, Houston, Texas, Feb. 2-4, 1959.

University of Texas Postgraduate School of Medicine, Temple Division, Seventh Postgraduate Conference in Medicine and Surgery, sponsored by Scott, Sherwood and Brindley Foundation, Temple, Tex., Mar. 2-4, 1959.

University of Colorado Medical Center, Denver, Colo., Postgraduate Course, Medical Technology, Mar. 16-21, 1959.

Biennial Western Conference on Anesthesiology. Approved for 24 hours Category II Credit, A.A.G.P. Westward Ho Hotel, Phoenix, Apr. 1-4, 1959. For information write to Boyden L. Crouch, M.D., 301 W. McDowell Road, Phoenix, Ariz.

The Arizona Medical Association, 68th Annual Meeting, San Marcos Hotel, Chandler, Ariz., April 29-May 2. Friday, May 1, has been designated as Medical Education Day.

New Mexico Medical Society, annual meeting, Las Cruces, N. Mex., May 5-7, 1959.





SAUL B. APPEL, M. D.

Certified by the American Board of Internal Medicine

CARDIOVASCULAR DISEASES

EL PASO MEDICAL CENTER 1501 Arizona Ave.

ANDREW M. BABEY, M. D.

Certified by the American Board of Internal Medicine

CARDIOVASCULAR DISEASES

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El Paso Medical Center

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1501 Arizona Ave. El Paso, Texas

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El Paso Medical Center

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JACK A. BERNARD, M. D., F. A. C. P. Diplomate American Board Internal Medicine

INTERNAL MEDICINE

CARDIOVASCULAR DISEASES

El Paso Medical Center Phone KE 3-BI51

1501 Arizona Avenue El Paso, Texas

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Diplomate of the American Board of Surgery General and Cancer Surgery

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Diplomates American Board Obstetrics and Gynecology

Suite B-A

Medical Center

1501 Arizona Ave.

Phone KE 2-6591

El Paso, Texas

FREDERICK P. BORNSTEIN, M.D.

Certified by the American Board of Pathology Member American Academy of Forensic Sciences, Section of Pathology

616 Mills Bldg.

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Certified by the American Board of Internal Medicine

- INTERNAL MEDICINE -

800 Montana Ave.

KE 3-B373

El Paso, Texas

BRANCH CRAIGE, M. D., F. A. C. P.

(Certified by American Board of Internal Medicine)

INTERNAL MEDICINE

Suite 5B

El Paso Medical Center 1501 Arizona Ave.

Phone KE 2-7121

El Paso, Texas

E. S. CROSSETT, M. D.

Diplomate American Board of Thoracic Surgery

THORACIC SURGERY

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Diplomates American Board of Urology

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Suite 3B Phone KE 3-1426

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Diplomates American Board of Orthopaedic Surgery

ORTHOPAEDIC SURGERY

744 N. Country Club Rd.

EAst 5-1533

Tucson, Arizona

J. C. DOTSON, M. D.

General Surgery

800 Montana Ave

KE 2-8111

El Paso, Texas

ANTONIO DOW, M. D., F. A. C. S.

(Diplomate American Board of Surgery)

GENERAL SURGERY

1022 Mills Bldg.

KE 2-7305

El Paso, Texas

HAROLD D. DOW, M. D. FREDERICK J. KOBERG, M. D. STEVE E. HOOD, JR., M. D.

General Practice - Surgery

Box 546 702 Hobbs Road

Phone 3641

Seminole, Texas

L. O. DUTTON, M. D. RITA L. DON, M. D. ALLERGY

616 Mills Bldg.

KF 2-3671

El Paso. Texas

ORVILLE EGBERT. M. D., F. A. C. P.

Diplomate American Board of Internal Medicine ALLERGY DISEASES OF THE CHEST

EDWARD EGBERT, M. D. INTERNAL MEDICINE

Building 3 El Paso Medical Center

Arizona Ave. El Paso, Texas 1501

JOHN A. EISENBEISS, M.D., F.A.C.S.

Diplomate of the American Board of Neurological Surgery

WILLIAM B. HELME, M.D.

NEUROSURGERY

926 E. McDowell Road

AL 4-3151

Phoenix, Arizona

E. J. ETTL. M.D., F.C.A.P.

Certified by American Board of Pathology

Pathology

3317 Fort Blvd.

LO 6-4351

El Paso, Texas





W. A. JONES, M. D.

Diplomate American Board of Neurological Surgery

NEUROLOGICAL SURGERY

Suite 1C El Paso Medical Center 1501 Arizona Ave.

Phone KE 2-7579

El Paso Medical Center El Paso, Texas

Suite 8E

1501 Arizona Ave. KF 2-2431

El Paso, Texas

G. H. Jordan, M.D., F.A.C.S. C. E. Webb, M.D., F.A.C.S. DRS. JORDAN AND WEBB

Diplomates American Board of Surgery

GENERAL and GYNECOLOGICAL SURGERY

Suite 78 El Paso Medical Center 1501 Arizona Ave.

Phone KE 2-1693

El Paso, Texas

LINDELL M. KINMAN, M. D.

Diplomate American Board of Urology

UROLOGY

300 West Alameda

Phone MA 2-4111

Roswell, N. M.

M. NATHAN KLEBAN, M. D.

Certified by American Board of Internal Medicine

INTERNAL MEDICINE

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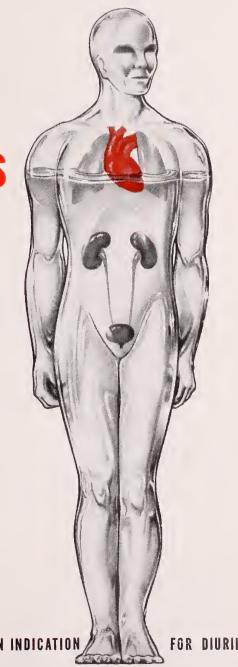
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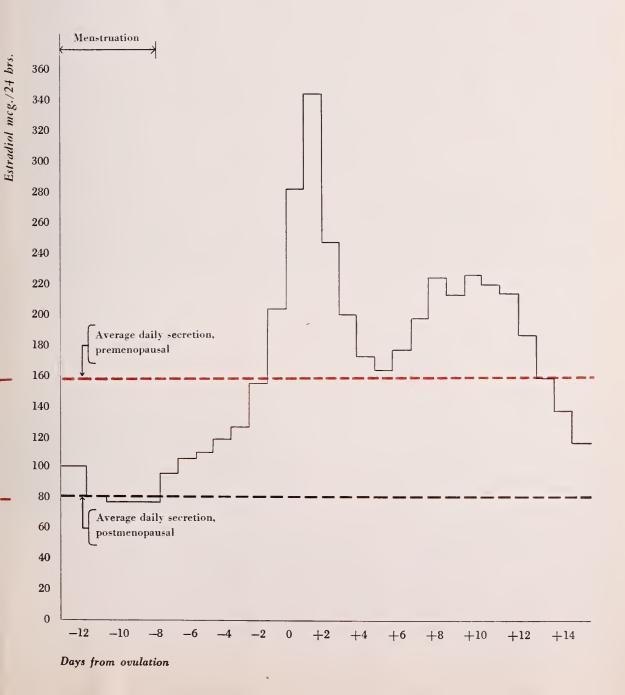
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1. Swartzwelder, J. C., et al.: J. A. M. A., 165:2063, 1957.



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GLUCOSAMINE-POTENTIATED TETRACYCLINE

CAPSULES

(black and white) 250 mg., 125 mg. (for pediatric or longterm therapy)

ORAL SUSPENSION

(orange-flavored) 125 mg. per tsp. (5 cc.) 2 oz. bottle

NEW! PEDIATRIC DROPS

(orange-flavored) 5 mg. per drop, calibrated dropper, 10 cc. bottle

COSA-TETRASTATIN*

glucosamine-potentiated tetracycline with nystatin

Antibacterial plus added protection against monilial super-infection

CAPSULES (black and pink) 250 mc Cosa-Tetracyn (with 250,000 u. nystatin)

ORAL SUSPENSION 125 mg. per tsp. (5 cc.) Cosa-Tetracyn (with 125,000 u. nystatin), 2 oz. bottle

COSA -TETRACYDIN*

glucosamine-potentiated tetracycline-analgesicantihistamine compound

For relief of symptoms and malaise of the common cold and prevention of secondary complications

CAPSULES (black and orange) -each capsule contains: Cosa-Tetracyn 125 mg.; phenacetin 120 mg.; caffeine 30 mg.; salicylamide 150 mg.; buclizine HCl 15 mg.

REFERENCES: 1. Carlozzi, M.: Antibiotic Med. & Clin. Therapy 5:146 (Feb.) 1958. 2. Welch, H.; Wright, W. W., and Staffa, A. W.: Antibiotic Med. & Clin. Therapy 5:52 (Jan.) 1958. 3. Marlow, A. A., and Bartlett, G. R.: Glucosamine and leukemia, Proc. Soc. Exp. Biol. & Med. 84:41, 1953. 4. Shalowitz, M.: Clin. Rev. 1:25 (April) 1958. 5. Nathan, L. A.: Arch. Pediat. 75:251 (June) 1958. 6. Cornbleet, T.; Chesrow, E., and Barsky, S.: Antibiotic Med. & Clin. Therapy 5:328 (May) 1958. 7. Stone, M. L.; Sedlis, A., Bamford, J., and Bradley, W.: Antibiotic Med. & Clin. Therapy 5:322 (May) 1958. 8. Harris, H.: Clin. Rev. 1:15 (July) 1958.

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orally administered

brand Pseudoephedrine Hydrochloride

decongestion of the respiratory tract mucosa...

TABLETS 30 mg. sugar-coated 60 mg. scored

'Sudafed' combines quick relief (15 to 30 minutes) with gentle, prolonged action (4 to 6 hours). Seldom causes central stimulation.

SYRUP

30 mg. per 5 cc. teaspoonful

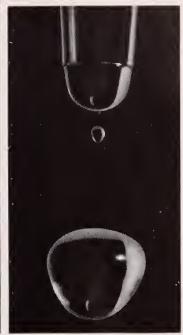


BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York

Intrinsically better for anemia | Company | C







In Biliary Distress

ZANCHOL

Improves Flow and Color of Bile

Zanchol (brand of florantyrone), a distinct chemical entity unrelated to the bile salts, provides the medical profession with a new and potent hydrocholeretic for treating disorders of the biliary tract.

The high degree of therapeutic activity of this new compound and its negligible side reactions yield distinct clinical advantages.

- Zanchol produces a bile low in sediment.
- Zanchol enhances the abstergent quality of bile.
- Zanchol produces a deep, brilliant green bile, regardless of its original color, suggesting improved hepatic function.

 Zanchol improves the flow and quantity of bile without increasing total bile solids.

Bile with these qualities minimizes biliary stasis, reduces sediment and debris in the bile ducts and discourages the ascent of infection.

For these reasons ZANCHOL has shown itself to be a highly valuable agent in chronic cholecystitis, cholangitis and care of patients following cholecystectomy.

Administration: One tablet three or four times a day. Zanchol is supplied in tablets of 250 mg. each. G. D. Searle & Co., Chicago 80, Illinois. Research in the Service of Medicine.

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expanded to include certain essential vitamins extra value...

at no extra cost to your patients

Theragran—the original and most widely prescribed therapeutic vitamin preparation—is now expanded to provide additional nutritional support for your adult patients. In keeping with the proposals of investigators, such yitamins as $B_{12},$ pyridoxine and d-calcium pantothenate have been added to the formula, and the ascorbic acid content has been increased. These improvements in the Theragran formula provide your patients with extra value at no additional cost.

Each new, improved Theragran capsule supplies:

Vitamin A	25,000 U.S.P. Units
Vitamin D	1,000 U.S.P. Units
Thiamine Mononitrate	10 mg.
Riboflavin	10 mg.
Niacinamide	100 mg.
Ascorbic Acid	200 mg.
Pyridoxine Hydrochloride	5 mg.
d-Calcium Pantothenate	20 mg.
Vitamin B ₁₂ activity concentrate	5 mcg.

1 or more capsules daily as recommended by a physician.

Family Pack of 180. Bottles of 30, 60, 100 and 1000.

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formulated for vitamin therapy in children and adolescents as Theragran is formulated for adults.

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for patients who prefer liquid vitamin therapy

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with extra vitamins and minerals

THERAGRAN' IS A SQUIBB TRADEMARK



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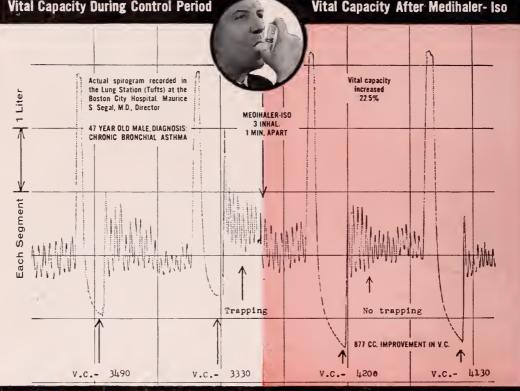
regardless of etiology



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origin. More rapid than

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acute allergic reactions.

Epinephrine bitartrate

Epinephrine cc., uspenosol

70 mg. per cntoxic are also

in inert. Contains no dose

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hol. Each meashrine.

0.15 mg. epinephrine.

Premicronization assures optimum particle size for maximum effectiveness. Medihaler-Iso is unsurpassed for rapid relief of symptoms of asthma and emphysema. In spillproof, leakproof, shatterproof, vest-pocket size dispensers.

Isoproterenol sulfate, 2.0 mg. per cc., suspended in inert, nontoxic aerosol vehicle. Contains no alcohol. Each measured dose 0.06 mg. isoproterenol.

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